

GAO

Report to the Ranking Minority Member,
Committee on Commerce, House of
Representatives

November 1998

HAZARDOUS WASTE

Unaddressed Risks at Many Potential Superfund Sites





United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-280168

November 30, 1998

The Honorable John D. Dingell
Ranking Minority Member
Committee on Commerce
House of Representatives

Dear Mr. Dingell:

As of August 1998, there were about 1,200 hazardous waste sites on the National Priorities List, the Environmental Protection Agency's (EPA) list of seriously contaminated sites needing cleanup under its Superfund program. According to EPA's Superfund database, the risks of 3,036 additional sites have been judged on the basis of preliminary evaluations to be serious enough to make the sites potentially eligible for the National Priorities List and are classified by EPA as "awaiting a National Priorities List decision." EPA's top priority has been to complete cleanups at the sites already on the list, and it has placed relatively few sites on the list in recent years. Information about the nature and extent of the threat that the sites awaiting a National Priorities List decision pose to human health and the environment, the states' or EPA's cleanup actions at the sites, and the states' or EPA's cleanup plans is important to determining the future size of the Superfund program.

Therefore, you requested that we survey EPA regions, other federal agencies, and the states to (1) determine the number of sites classified as awaiting a National Priorities List decision that remain potentially eligible for the list; (2) describe the characteristics of these sites, including their health and environmental risks; (3) determine the status of any actions to clean up these sites; and (4) collect the opinions of EPA and other federal and state officials on the likely final disposition of these sites, including the number of sites that are expected to be added to the National Priorities List. This report summarizes the information obtained from our surveys. Also, as you requested, we are providing information on each of the surveyed sites in a separate report to you, Hazardous Waste: Information on Potential Superfund Sites (GAO/RCED-99-22).

Results in Brief

On the basis of surveys of EPA regions, other federal agencies, and states,¹ we have determined that 1,789 of the 3,036 sites that EPA's database

¹In this report, unless otherwise noted, the term "states" includes the 50 states, the District of Columbia, Guam, Midway Island, the Northern Mariana Islands, Puerto Rico, and the Navajo Nation.

classified as "awaiting a National Priorities List decision" in October 1997 are still potentially eligible for placement on the list.² We consider the 1,234 other sites as unlikely to become eligible for various reasons. For example, some sites were erroneously classified as awaiting a National Priorities List decision or do not meet EPA's criteria for placement on the list. Other sites do not require cleanup in the view of the responding officials, have already been cleaned up, or have final cleanup activities under way.³

Officials of EPA, other federal agencies, and states said that many of the potentially eligible sites present risks to human health and the environment. According to these officials, about 73 percent of the sites have caused contamination in groundwater, and another 22 percent could contaminate groundwater in the future. Furthermore, about 32 percent of the sites caused contamination in drinking water sources and another 56 percent could contaminate drinking water sources in the future.⁴ The potentially eligible sites are generally located in populated areas: 96 percent are within a half mile of residences or places of regular employment. Workers, visitors, or trespassers may have direct contact with contaminants at about 55 percent of the sites. Officials of EPA, other federal agencies, and states said that about 17 percent of the potentially eligible sites currently pose high human health and environmental risks and that another 10 percent could also pose high risks in the future if they are not cleaned up. However, these officials were unsure about the severity of risks for a large proportion of the sites. For about one-third of the sites, the officials said that it was too soon to determine the seriousness of the sites' risks or that they needed more information to make a judgment, or provided no information on the sites' risks.

Responding officials said that some cleanup actions—which they did not characterize as full cleanup actions—have taken place at 686 of the potentially eligible sites. These actions have been taken at more than half of the sites that have been reported to currently or potentially pose high risks, compared to about a third of the sites that have been reported to currently or potentially pose average or low risks. No cleanup activities

²We refer to these 1,789 hazardous waste sites as "potentially eligible sites" because, on the basis of preliminary evaluations, EPA has determined that the sites may be eligible for the National Priorities List. Of these 1,789 sites, EPA and state officials collectively identified only 232 sites as possible National Priorities List candidates. Whether they are eventually listed depends on, among other things, a final evaluation by EPA and the states' concurrence. Except where otherwise stated, this report discusses only the 1,789 potentially eligible sites.

³EPA may include on the National Priorities List a site that the agency believes has not been satisfactorily cleaned up under state authority.

⁴Groundwater and surface water each supply about 50 percent of the nation's drinking water.

beyond initial site assessments or investigations have been conducted, or no information is available on any such actions, at the other 1,103 potentially eligible sites.⁵ Many of the potentially eligible sites have been in states' and EPA's inventories of hazardous sites for extended periods. Seventy-three percent have been in EPA's inventory for more than a decade. No cleanup progress was reported at the majority of the sites that have been known for 10 years or more.

Responding officials did not indicate whether or how more than half of the potentially eligible sites would be cleaned up. Collectively, EPA and state officials believed that 232 (13 percent) of the potentially eligible sites might be placed on the National Priorities List in the future. However, EPA and the states agreed on the listing prospects of only a small number of specific sites. Officials estimated that almost one third of the potentially eligible sites are likely to be cleaned up under state programs but usually could not give a date for the start of cleanup activities. State officials stated that, for about two-thirds of the sites likely to be cleaned up under state programs, the extent of responsible parties' participation is uncertain. Nevertheless, officials of about 20 percent of the states said that their state's enforcement capacity (including resources and legal authority) to compel responsible parties to clean up potentially eligible sites is fair to very poor. Furthermore, officials of about half of the states told us that their state's financial capability to clean up potentially eligible sites, if necessary, is poor or very poor.

Background

In 1980, the Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which established the Superfund program to clean up highly contaminated hazardous waste sites. EPA administers the program, oversees cleanups performed by the parties responsible for contaminating the sites, and performs cleanups itself. State governments also have a role in the Superfund process. States may enter into contracts or cooperative agreements with EPA to carry out certain Superfund actions, including evaluating sites, cleaning them up, and overseeing the cleanups. In addition, most states have established their own hazardous waste programs that can clean up sites independently of the federal Superfund program. State cleanup programs include efforts

⁵Of the 1,103 sites for which no cleanup actions were reported, both EPA and the states said that they had taken no cleanup actions beyond initial site assessments at 719. For 336 sites, EPA officials alone said that their agency had taken no cleanup actions, but the states provided no information. California, Massachusetts, and New Jersey accounted for about 85 percent of these sites. Similarly, for 6 sites, the states said that they had taken no action, but EPA provided no information. Neither EPA nor the states provided information on any cleanup actions that may have occurred at the remaining 42 of the 1,103 sites.

to enforce state cleanup laws on responsible parties and to encourage them to "voluntarily" clean up contaminated sites.

CERCLA requires EPA to develop and maintain a list of hazardous sites, known as the National Priorities List, that the agency considers to present the most serious threats to human health and the environment. These sites represent EPA's highest priorities for cleanup nationwide. Although EPA may undertake cleanup actions at contaminated sites not on the National Priorities List, the agency's regulations stipulate that only sites placed on the list are eligible for long-term cleanup ("remedial action") financed by the agency under the trust fund established by CERCLA. Additional details on EPA's process for placing sites on the National Priorities List are included in appendix I.

The 3,036 sites that were awaiting a National Priorities List decision as of October 1997 represent only a portion of the sites that EPA has evaluated and classified over the history of the Superfund program. According to EPA, as of November 1998, the Superfund program had investigated over 40,000 potential hazardous waste sites and made final decisions about whether or not to include almost 35,000 sites on the National Priorities List. EPA also reported that it has removed waste or taken other interim cleanup actions at over 5,500 sites—most of which are not on the National Priorities List—to address the most urgent risks and stabilize conditions to prevent further releases of contamination. For the more than 1,400 sites EPA has placed on the list,⁶ it has completed cleanup studies at most and has completed cleanup construction at 585. States have reported cleaning up thousands of sites under their own programs and authorities.

To obtain information on the 3,036 sites that EPA identified as awaiting a National Priorities List decision, we developed and mailed two surveys for each nonfederal site and three surveys for each federal facility. We sent surveys to site assessment officials in EPA's 10 regional offices, and since state officials might have more knowledge of some of the sites, we also sent surveys to the 50 states, the District of Columbia, Guam, Midway Island, the Northern Mariana Islands, Puerto Rico, and the Navajo Nation (collectively referred to as states in this report). In addition, if a federal agency is responsible for cleaning up sites, we also sent surveys to that agency. We surveyed 14 federal agencies for 157 of the 3,036 sites that are federally owned and/or operated. Because we did not receive responses from some states and incomplete responses from others, we sent follow-up surveys to state officials. In total, we received one or more

⁶About 200 of these 1,400 sites have been subsequently deleted from the National Priorities List.

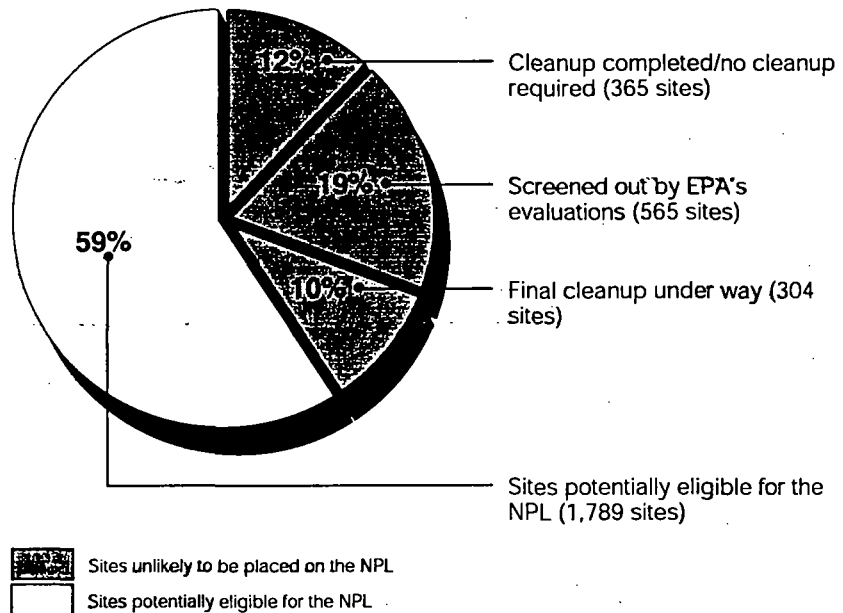
survey responses for 3,023 (99.5 percent) of the 3,036 sites identified by EPA as awaiting a National Priorities List decision. We discuss our methodology in greater detail in appendix II, and appendix III includes reproductions of our surveys.

About 1,800 Sites Classified as Awaiting a National Priorities List Decision Remain Potentially Eligible for the List

The responses to our surveys of officials of EPA, other federal agencies, and states indicate that ~~1,789 of the 3,036~~ sites classified by EPA's database as awaiting a National Priorities List decision are potentially eligible for the list. Another 1,234 sites are unlikely to become eligible for the Superfund program for various reasons. First, EPA's database of potentially contaminated sites, known as the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), inaccurately lists some sites as awaiting a National Priorities List decision although they are not eligible for listing. EPA regions reported that about 19 percent of the 3,036 sites should not be considered eligible sites because (1) they received preliminary hazard ranking scores below the qualifying level or (2) EPA has already proposed them for the list or decided not to propose them for the list. According to an EPA Superfund program official, the incorrect data entries may have resulted from regional program managers' misinterpretation of EPA's guidance on CERCLIS coding.

We consider another 22 percent of the sites unlikely to become eligible for the National Priorities List because, according to responding officials, they either do not require any cleanup action (183 sites), have already been cleaned up (182 sites), or are currently undergoing final cleanup (304 sites) under state programs. No information is available on the status of the remaining 13 sites because of missing survey responses (see fig. 1).

Figure 1: Status of Hazardous Waste Sites Identified by CERCLIS as Awaiting a National Priorities List Decision



Legend

NPL = National Priorities List

Note: Figure does not include 13 sites for which completed survey responses were not received.

We performed most of our analysis of site conditions, cleanup activities, and plans for future cleanups for the 1,789 sites remaining after we excluded the categories of sites that are shaded in the figure. We refer to the remaining sites as potentially eligible sites. They include 1,739 nonfederal sites and 50 federal facilities.

Many Potentially Eligible Sites Pose Risks

Responses to our surveys indicate that many of the 1,789 sites that are potentially eligible for the National Priorities List pose risks to human health or the environment. Most of them threaten drinking water sources or groundwater; they are generally located in populated areas; and although many of the sites are fenced to prevent entry, workers, visitors, and trespassers may have direct contact with contaminants at more than half of the sites. The sites are contaminated most often with metals, but

other contaminants are also present. Officials of EPA, other federal agencies, and states who responded to our survey characterized the risks presented by about two-thirds of the potentially eligible sites. They said that about 17 percent of the sites currently pose high human health and environmental risks; another 10 percent of the sites potentially pose high future risks. In addition, officials were unsure about the severity of site conditions for a large proportion of potentially eligible sites.

**Adverse Conditions
Caused by Contamination
at the Sites**

A large portion of the potentially eligible sites have contaminated nearby groundwater, drinking water sources, or both. As figures 2 and 3 indicate, about 73 percent of the potentially eligible sites have already contaminated groundwater, and another 22 percent of the sites, approximately, could contaminate groundwater in the future. In addition, about 32 percent of the potentially eligible sites have already contaminated drinking water sources, and about 56 percent more could contaminate drinking water sources in the future.

Figure 2: Percentage of Potentially Eligible Sites With Groundwater Contamination

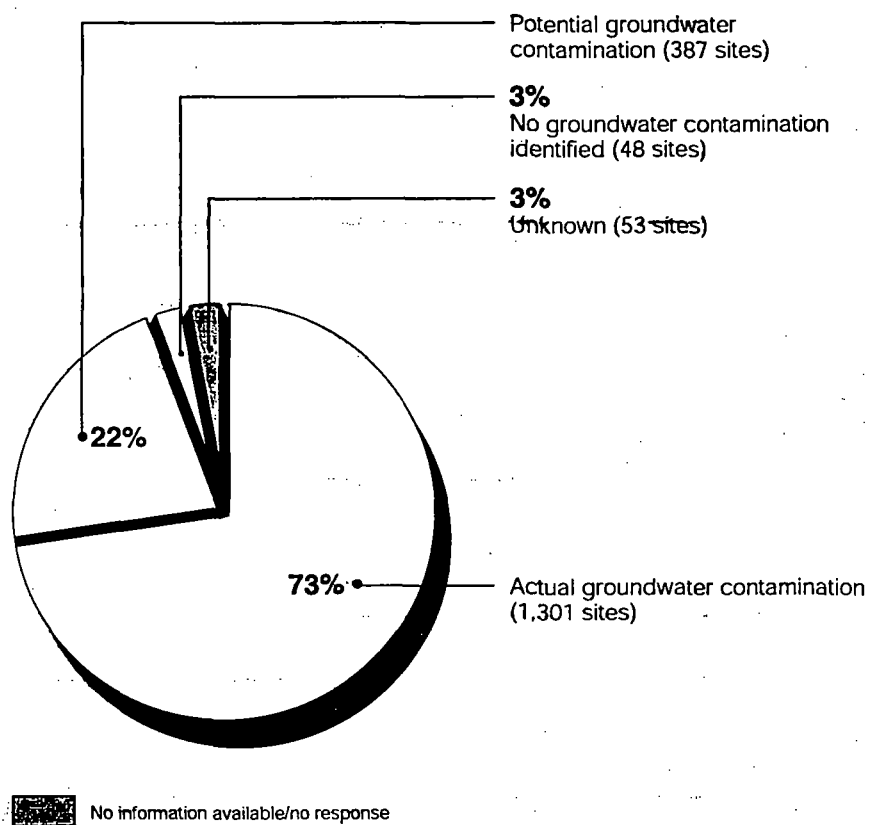
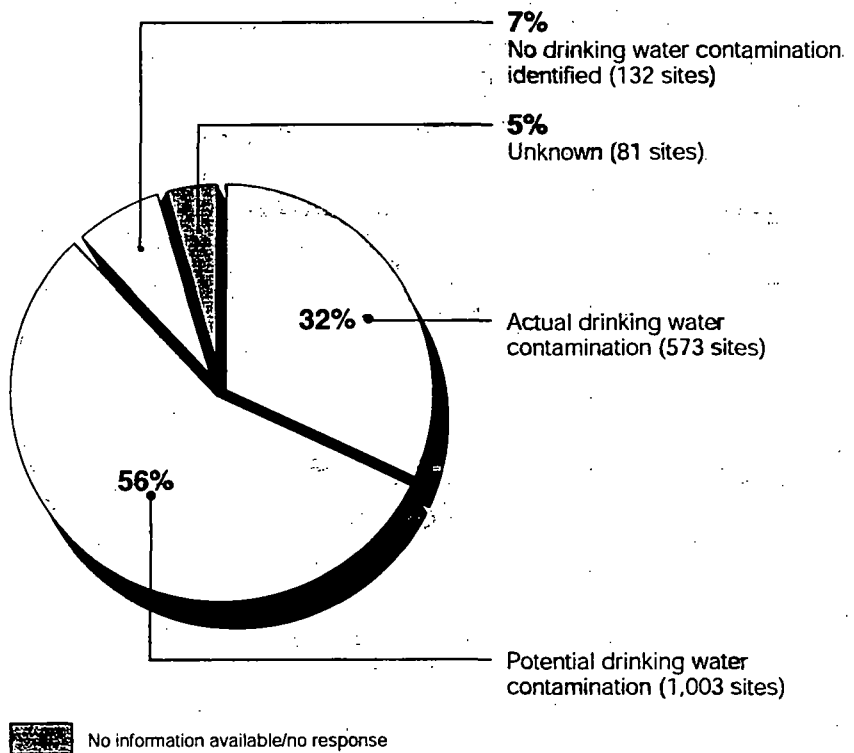


Figure 3: Percentage of Potentially Eligible Sites With Drinking Water Source Contamination



The contamination at many of the potentially eligible sites is also resulting in a number of other adverse conditions. Table 1 shows the percentage of potentially eligible sites that have experienced or contributed to specific conditions. As the table also shows, respondents to our surveys were uncertain whether the conditions were present at a relatively large percentage of the potentially eligible sites.

Table 1: Percentage of Potentially Eligible Sites Contributing to Specified Adverse Conditions and Percentage of Sites for Which Conditions' Presence Is Uncertain

| Conditions resulting from contamination at 1,789 potentially eligible sites | Number of potentially eligible sites with condition | Percentage of potentially eligible sites with condition | Percentage of potentially eligible sites for which presence of condition is uncertain |
|--|---|---|---|
| Workers/visitors may have direct contact with contaminants | 981 | 55 | 21 |
| Trespassers may come into direct contact with contaminants | 969 | 54 | 20 |
| Fences/barriers/signs are erected to keep residents or others out of contaminated areas | 618 | 35 | 19 |
| Residents/community have concerns about contamination or potential health effects caused by this site | 548 | 31 | 35 |
| Fish could be unsafe to eat | 486 | 27 | 29 |
| Institutional restrictions ^a are necessary because of site's contamination | 410 | 23 | 46 |
| Residents/others should avoid exposure to contaminated dust on some days | 355 | 20 | 23 |
| Sources of drinking water permanently changed ^b | 215 | 12 | 20 |
| Obnoxious odors are present | 194 | 11 | 24 |
| Residents advised not to use wells | 150 | 8 | 20 |
| Fish, plants, or animals are sick/dying | 143 | 8 | 33 |
| Residents, workers, etc. use water (for bathing, landscaping, etc.) that fails to meet water quality standards | 102 | 6 | 29 |
| Recreation (e.g., fishing, swimming) is stopped or restricted | 85 | 5 | 23 |
| Residents advised to use filtered water | 75 | 4 | 21 |
| Residents advised to use bottled water | 72 | 4 | 20 |
| Residents advised not to let children play/dig in their yards | 55 | 3 | 20 |
| Crops are irrigated with contaminated water | 52 | 3 | 29 |
| Livestock drink contaminated water | 44 | 3 | 28 |

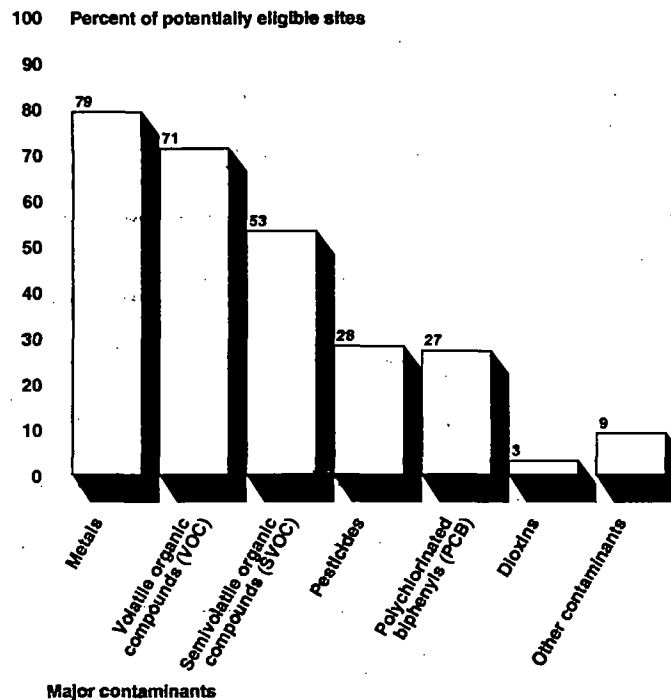
^aInstitutional restrictions include limitations on uses of a property such as deed restrictions that limit a property to industrial use or legal limits placed on the depth of a well at a site.

^bFor example, by connecting residents to municipal water supplies in place of well water.

As figure 4 shows, the sites that are potentially eligible for the National Priorities List are contaminated by a variety of pollutants.

Metals—primarily heavy metals such as lead, mercury, or cadmium—are the principal contaminants at these sites. These metals can cause brain and kidney damage and birth defects. The second most prominent contaminants at these sites are volatile organic compounds (VOC). VOCs are carbon-based compounds, such as benzene, that easily become vapors or gases and can cause cancer, as well as damage to the blood, immune, and reproductive systems. A large portion of the potentially eligible sites are also contaminated by semivolatile organic compounds (SVOC), which are similar to VOCs and can result in human respiratory illnesses. Additional major contaminants at the sites are pesticides, the most toxic of which can cause acute nervous system effects and skin irritations and may cause reproductive system effects and cancer; polychlorinated biphenyls (PCB), which can cause skin irritations and other related conditions and may contribute to causing cancers, liver damage, and reproductive and developmental effects; dioxins, which are also a suspected human carcinogen; and other unspecified contaminants. The potentially eligible sites are generally located in populated areas: Ninety-six percent are within a half mile of residences or places of regular employment.

Figure 4: Percentage of Potentially Eligible Sites With Specified Contaminants



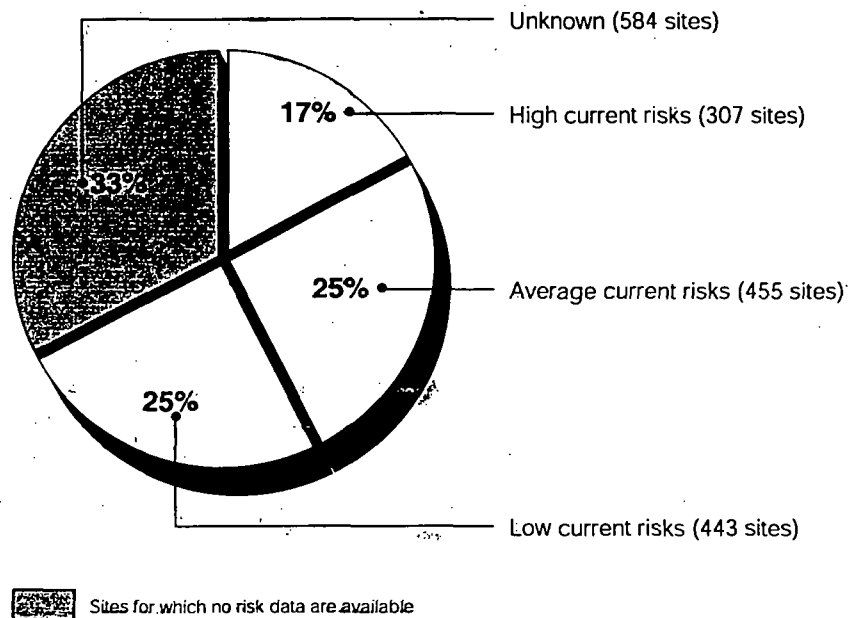
Note: Data are based on EPA's survey responses only. More than one contaminant can be present at a site.

Respondents Ranked the Risks of About Two-Thirds of the Potentially Eligible Sites

We asked officials of EPA, other federal agencies, and states to rank the relative risks of potentially eligible sites. The officials responding to our surveys said that they could assess the current risks of 67 percent of the sites and the potential risks of 68 percent of the sites. According to these officials, about 17 percent of the potentially eligible sites currently pose high risks (see fig. 5), and another 10 percent of the sites (for a total of

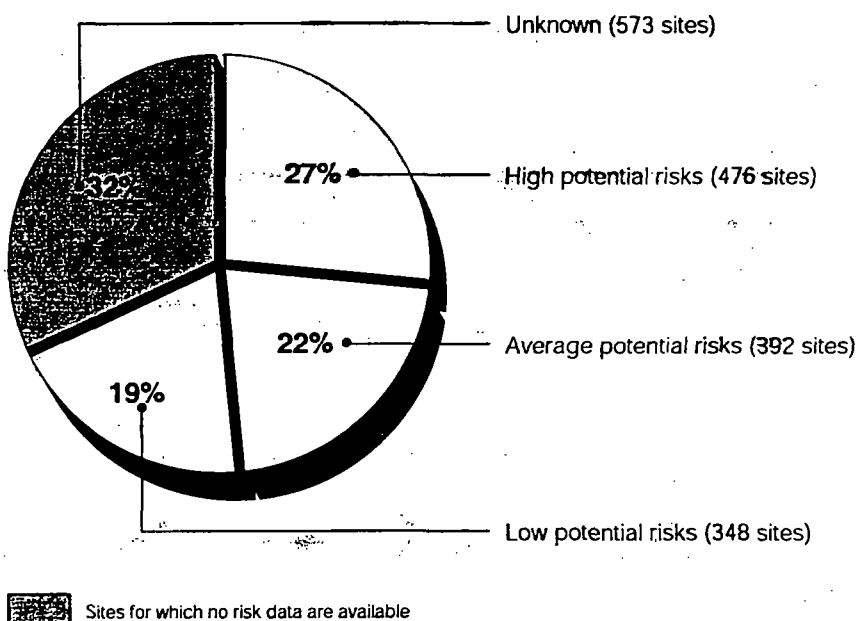
27 percent) could pose high risks in the future (see fig. 6) if they are not cleaned up.⁷

Figure 5: Percentage of Potentially Eligible Sites With High, Average, and Low Current Risks



⁷The ranking of risks for about half of the potentially eligible sites was based on the response of only one party, either an EPA or a state official. In these cases, the other party either gave no opinion on risk ranking or did not return a survey for that site. When two or more respondents gave an opinion on risks at a site, they agreed on about 45 percent of the sites and disagreed on about 55 percent. Most often, the disagreements involved sites that one party believed represented average risks and the other party, high or low risks. EPA and state officials' rankings of current risk strongly disagreed for only 38 sites (i.e., when one respondent ranked risks high and the other respondent ranked them low); their rankings of potential risk strongly disagreed for 51 sites. Both sites posing high risks and sites with unknown risks are concentrated in a few states. Three states—California, Florida, and Illinois—account for about 43 percent of the sites ranked as posing high risks and 24 percent of the 1,789 potentially eligible sites. Similarly, another three states—Massachusetts, New Jersey, and New York—account for about 54 percent of the sites for which officials did not estimate risks and 20 percent of the total potentially eligible sites.

Figure 6: Percentage of Potentially Eligible Sites With High, Average, and Low Potential Risks



EPA's and States' Cleanup Activities at Potentially Eligible Sites Have Been Limited

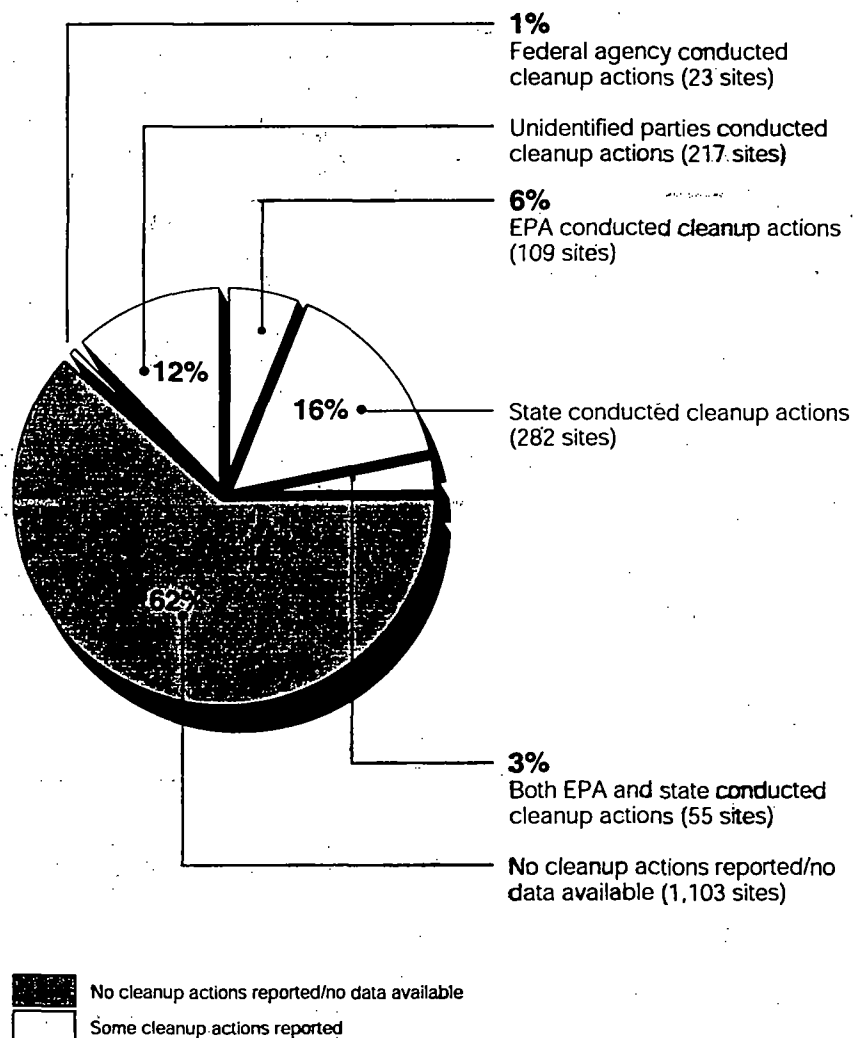
The 1,789 sites that are potentially eligible for the National Priorities List include (1) 686 sites where some cleanup activities have reportedly taken place or are currently being conducted but the final cleanup remedies are not yet under way⁸ and (2) 1,103 sites where officials reported that no substantive cleanup activities beyond initial site assessments or investigations have occurred or no information on cleanup progress is available. Data on the year in which each potentially eligible site was entered into EPA's records—the "discovery date"—indicate that a significant portion of these sites have been in EPA's and states' inventories of known hazardous waste sites for more than a decade. Furthermore, 45 percent of the sites reported to have high current risks and 47 percent of the sites with high potential risks have not had any cleanup activities, or no information on their cleanup progress is available.

⁸As indicated earlier, the 1,789 sites do not include any sites that EPA or the states reported had been or were being fully cleaned up.

**Only Limited Cleanup
Activities Have Been
Reported for Potentially
Eligible Sites**

EPA, other federal agencies, and the states reported conducting some cleanup actions at 38 percent of the potentially eligible sites. Figure 7 shows the number and percentage of potentially eligible sites at which federal and state agencies have undertaken some cleanup activities or conducted other actions such as providing alternative water supplies. (App. IV presents data on the distribution of the sites with and without reported cleanup actions among states and responsible federal agencies.)

Figure 7: Percentage of Potentially Eligible Sites at Which EPA, Other Federal Agencies, and States Have Conducted Cleanup Activities



Note: The "Federal agency conducted cleanup actions" category includes, among others, three sites at which both the state and the responsible federal agencies have conducted cleanup actions, four sites at which both EPA and the responsible federal agencies have conducted some cleanup actions, and one site at which EPA, the other federal agency, and the state all have conducted some cleanup actions. The "Unidentified parties conducted cleanup actions" category includes sites where cleanup actions—usually temporary or permanent changes of drinking water supplies—were reported but the party responsible for the actions was not specifically identified.

EPA, other federal agencies, and the states have completed removal actions or interim, partial response actions (not characterized by survey respondents as final cleanup solutions), including changing the water supplies of affected residents, at 576 of the 686 sites with cleanup actions. At the other 110 sites, responding officials told us that some cleanup is under way, but they are not sure if it will be a final response. EPA, other federal agencies, and the states reported conducting no cleanup activities beyond site assessments at the remaining 1,103 potentially eligible sites, or no information on cleanup progress at these sites is available.

Most High-Risk Sites Have Undergone Some Cleanup

One hundred and seventy (55 percent) of the 307 sites that are estimated to currently pose high risks have undergone some cleanup activities, while 137 (45 percent) of these sites reportedly have seen no cleanup activities, or no information on cleanup progress is available (see fig. 8). Similarly, 254 (53 percent) of the 476 sites said to potentially pose high risks⁹ have undergone some cleanup actions, and 222 (47 percent) have reportedly undergone none, or information is lacking (see fig. 9).

⁹The 476 sites that potentially pose high risks include 304 of the 307 sites that also currently pose high risks. Of the remaining 172 sites that respondents estimated do not currently pose high risks but may in the future, about half have undergone some cleanup activities and about half have reportedly undergone none.

Figure 8: Cleanup Actions at Potentially Eligible Sites, by Reported Current Risk Levels

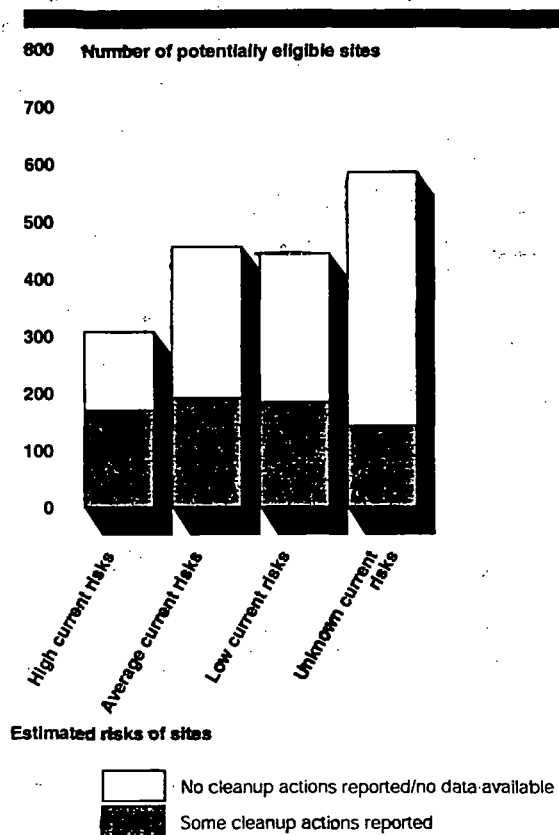
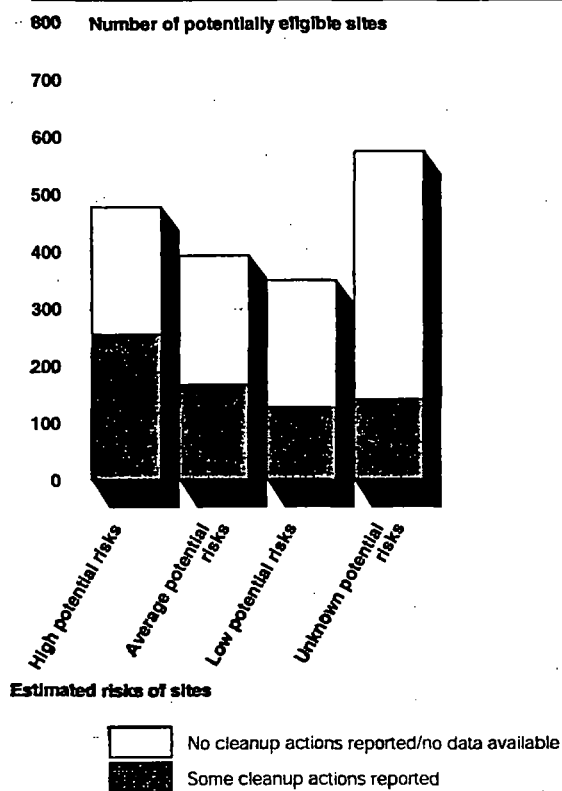


Figure 9: Cleanup Actions at Potentially Eligible Sites, by Reported Potential Risk Levels



See appendix V for additional discussion of the sites at which cleanup actions have been taken.

Most Sites Have Been in the CERCLIS Inventory for More Than a Decade

Most of the hazardous waste sites that are potentially eligible for the National Priorities List were "discovered," that is, entered into EPA's inventory of sites needing examination, more than a decade ago. As table 2 indicates, 10 percent of the potentially eligible sites were discovered in 1979 or earlier, and 42 percent were discovered before 1985.

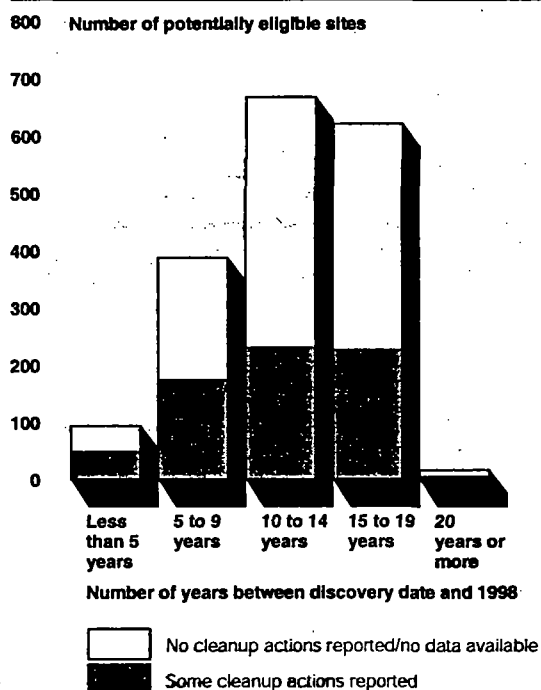
**Table 2: Discovery Dates for 1,789
Potentially Eligible Sites**

| Year of discovery | Percentage of sites |
|----------------------------|----------------------------|
| Prior to 1980 ^a | 10 |
| 1980-84 | 32 |
| 1985-90 | 43 |
| 1991-96 | 15 |
| Total (1,789 sites) | 100 |

^aAlthough the Superfund program was not established until 1980, the CERCLIS database incorporates hazardous waste sites that were identified before that date.

As shown in figure 10, one-third of the sites that have been known for 10 to 14 years and another third of the sites that have been in the inventory for 15 years or more have undergone some cleanup activities. Conversely, the majority of the sites that have been known for 10 years or more have reportedly made no cleanup progress, or no information on cleanup progress is available.

Figure 10: Cleanup Status of Potentially Eligible Sites by Number of Years They Have Been in the EPA's Inventory



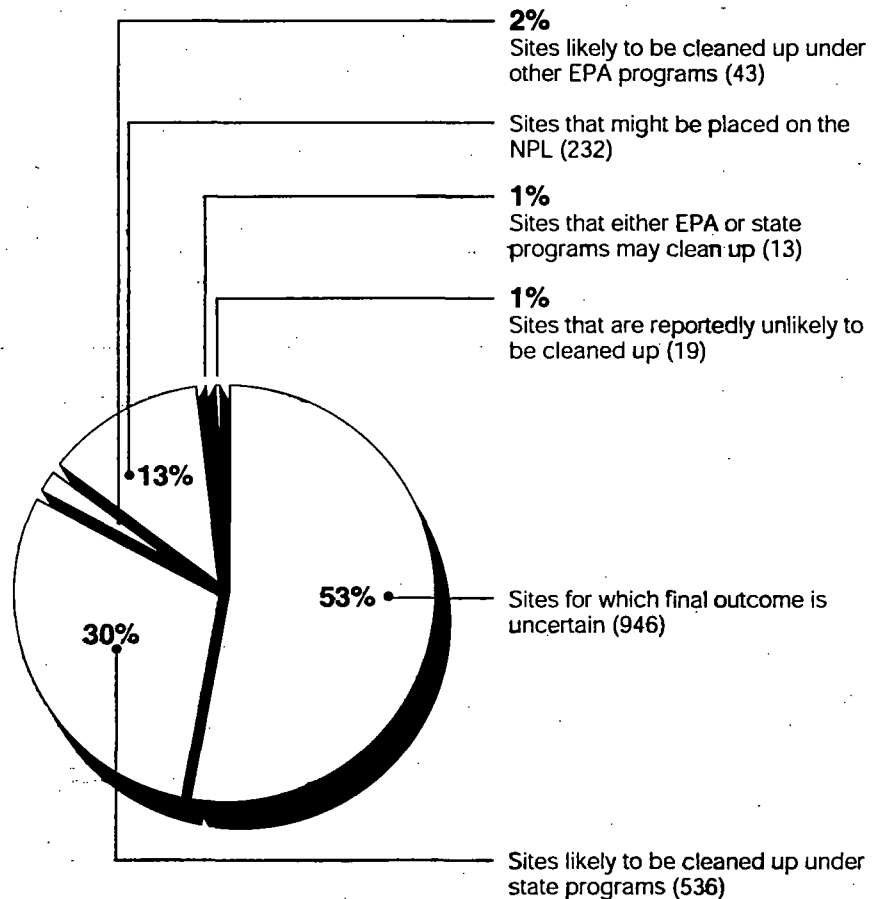
Note: Figure does not include data on five sites for which EPA did not provide a discovery date.

According to the CERCLIS database, many of the potentially eligible sites have not only been in the inventory for a long time but have also been awaiting a National Priorities List decision for several years. The CERCLIS database records the date of the "last action" taken at the inventory sites, including, among other actions, the completion of site inspections or expanded site inspections. These dates generally can be used as an indication of when the sites became potentially eligible for placement on the National Priorities List. The last action recorded for 87 percent of the potentially eligible sites is the completion of a site inspection. Another 12 percent of the sites have completed or are undergoing expanded site inspections. The data show that the last action at half of the potentially eligible sites occurred in 1994 or earlier. The last action date for 24 percent of the sites is 1995, and for 27 percent, 1996 or later. For 4 percent of the sites, the last recorded action took place before 1990.

Respondents Are Uncertain About Future Cleanups at Most Sites

It is uncertain whether most potentially eligible sites will be cleaned up; who will do the cleanup; under what programs these activities will occur; what the extent of responsible parties' participation will be; and when cleanup actions, if any, are likely to begin. Responding officials did not indicate the final outcome for 53 percent of the 1,789 potentially eligible sites (see fig. 11). They estimated that 536 (30 percent) of the sites will be cleaned up under state programs but usually could not give a date for the start of cleanup or say whether responsible parties would participate. Collectively, they believed that 232 (13 percent) of the potentially eligible sites may be listed on the National Priorities List and cleaned up under the Superfund program, but there are few sites that both federal and state officials agreed would be listed (see fig. 12).

Figure 11: Estimates of the Likely Final Cleanup Outcome for 1,789 Potentially Eligible Sites



Cleanup Actions Under State Programs

Respondents thought that the largest portion of the potentially eligible sites for which they could predict a cleanup outcome—536 sites, or 30 percent of the 1,789 sites—are likely to be cleaned up under state enforcement or voluntary cleanup programs. However, state officials were able to estimate when they were likely to begin cleaning up only 121 (23 percent) of the 536 sites. They expected to begin cleanup activities at 84 of these sites before the end of 1998 and at 35 sites by the year 2000.

State officials also said that parties responsible for the waste at the sites that are expected to be cleaned up under state programs are likely to clean up only 172 (32 percent) of the 536 sites. Such parties are unlikely to

participate in cleanups at another 29 (5 percent) of these sites. For the remaining two-thirds of the sites that states reported are likely to be cleaned up under state programs, the extent of responsible parties' participation is uncertain.

Our survey data also show that states are more likely to have cleanup plans for the near future (within 5 years) if responsible parties are available to pay for cleanups. If responsible parties are expected to clean up a site, states are more than twice as likely to have plans to begin work on the cleanup within the next 5 years (10 percent) as for a site at which cleanup by responsible parties is unlikely (4 percent). Furthermore, states are most likely to have plans to complete the cleanup within 5 years if responsible parties are likely to clean up all or almost all of the site. Twenty-one percent of the sites with such parties are expected to be completed by 2003.

State officials also provided information about their state's capabilities for compelling responsible parties to clean up potentially eligible sites or to fund cleanup activities, if necessary. Officials of 33 (75 percent) of the 44 states participating in our telephone survey said that their state's enforcement capacity (including resources and legal authority) to compel responsible parties to clean up potentially eligible sites is excellent or good. Officials of 5 (11 percent) of the participating states believed that their state's enforcement capacity is fair, and another 5 (11 percent) said that their state's enforcement capacity is poor or very poor. The remaining state official was uncertain about the state's enforcement capability. Furthermore, officials of 11 states (25 percent) told us that their state's financial capability to clean up potentially eligible sites, if necessary, is excellent or good. Officials of 7 (16 percent) of the states said that their state's ability to fund cleanups is fair, and 23 (52 percent) said that their state's ability to fund these cleanups is poor or very poor. The remaining three officials were uncertain about their state's funding capability. (App. VI presents, by state, officials' assessments of their state's ability to fund cleanup activities at potentially eligible sites).

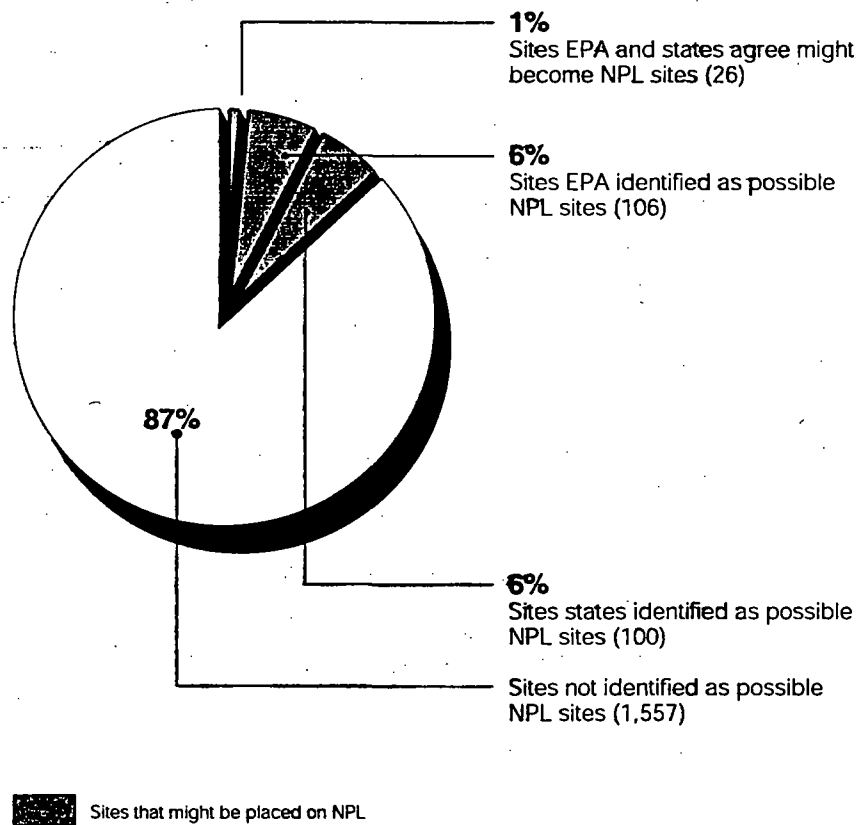
EPA officials told us that 43 potentially eligible sites are likely to be cleaned up under other programs such as the Resource Conservation and Recovery Act¹⁰ program.

¹⁰The Resource Conservation and Recovery Act of 1976 requires EPA or authorized state programs to, among other actions, establish and enforce regulations governing facilities that treat, store, and dispose of hazardous waste.

Cleanup Actions Under EPA's Superfund Program

EPA or state officials¹¹ said that, in their opinion, as many as 232 (13 percent) of the potentially eligible sites may be listed on the National Priorities List in the future. As shown in figure 12, EPA and the states agreed on the possible listing of only a few sites.

Figure 12: EPA's and States' Estimates of the Number of Potentially Eligible Sites That May Be Placed on the National Priorities List



Legend

NPL = National Priorities List

¹¹None of the other responsible federal agencies surveyed identified potentially eligible sites under their jurisdiction that they believe are likely to be placed on the National Priorities List.

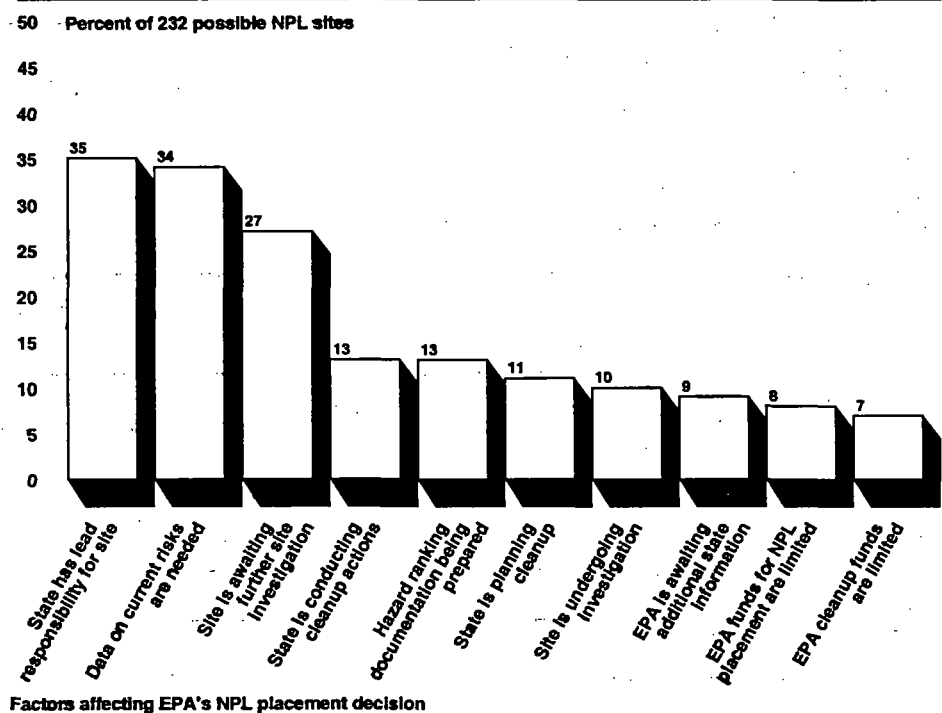
In general, EPA and state officials believed that those sites with responsible parties who are likely to clean them up are less likely candidates for placement on the National Priorities List. Of the 232 sites cited as possible National Priorities List candidates, 154 (66 percent) have no identified responsible party or no responsible party who officials felt certain is able and willing to conduct cleanup activities. Survey respondents considered such parties likely to clean up all or almost all of only 22 (9 percent) of the 232 sites. No information was provided on the likely extent of responsible parties' participation in cleaning up the remaining 24 percent of these sites.

High-risk sites are more likely to be cited as National Priorities List candidates than others. One hundred twenty-nine (56 percent) of the sites that may be listed on the National Priorities List currently pose high risks, according to survey respondents. Another 45 (19 percent) of the sites pose average risks, and 12 sites (5 percent) pose low risks. Responding officials were unable to estimate the risks of the remaining 46 (20 percent) of these sites.

In our telephone surveys, we asked state officials about the types of sites that the states prefer to be placed on the National Priorities List. Officials of 26 (60 percent) of the 44 states that participated in the surveys told us that they are more likely to support listing sites with cleanup costs that are very high compared to those for other types of sites.

Although respondents from EPA, other federal agencies, and states jointly believed that as many as 232 of the potentially eligible sites may eventually be placed on the list, none of these sites has yet been proposed for listing. EPA respondents cited several major reasons that the agency has not yet decided whether to propose these sites for the National Priorities List or remove them from further consideration for listing. The most common reasons were that EPA considers the state program to have the lead for cleanup or more data on the current risks of the sites are needed. Other major factors are shown in figure 13.

Figure 13: Principal Reasons That EPA Has Not Yet Made a Decision About Placing a Site on the National Priorities List, by Percentage of Applicable Sites



Legend

NPL = National Priorities List

Note: Respondents could select more than one reason for each site.

Conclusions

EPA has already made decisions about whether or not to place on the National Priorities List most of the sites that have come into its hazardous waste site inventory. However, decisions to list a large number of sites potentially eligible to enter the Superfund program or to exclude them from further consideration for listing have been deferred, in many cases for over a decade.

Our surveys of officials of EPA, other federal agencies, and states indicate that there is a need to decide on how to address these potentially eligible sites. First, about a quarter of the sites may pose high risks to human health and the environment, in the opinion of officials responding to our surveys. Responding officials said that they cannot rank the risks of

another third of the sites. Second, some cleanup activities were reported to have occurred at only about half of the sites whose risks were rated high by survey respondents. Third, although all 1,789 potentially eligible sites included in our surveys may require cleanup, officials of EPA, other federal agencies, and states are uncertain about what cleanup actions will be taken at more than half of them and whether EPA or the states should take these actions. Furthermore, some states have concerns about their enforcement and resource capabilities for cleaning up sites.¹² In view of the risks associated with many of the potentially eligible sites and the length of time that EPA or the states have known of them, timely action by EPA and the states is needed to obtain the information required to assess the sites' risks, set priorities for cleanups, assign responsibility to EPA or the states for arranging the cleanups, and inform the public as to which party is responsible for each site's cleanup. Also, as part of the process, inaccurate or out-of-date information on sites that are classified in the CERCLIS database as awaiting a National Priorities List decision needs to be corrected.

Recommendations

Because of the need for current and accurate information on the risks posed by the 1,789 sites that are potentially eligible for the National Priorities List in order to set cleanup priorities and delineate cleanup responsibilities, we recommend that the Administrator, EPA,

- in consultation with each applicable state, (1) develop a timetable for EPA or the state to characterize and rank the risks associated with the potentially eligible sites and (2) establish interim cleanup measures that may be appropriate for EPA and the state to take at potentially eligible sites that pose the highest risks while these sites await either placement on the National Priorities List or state action to fully clean them up;
- in consultation with each applicable state, (1) develop a timetable for determining whether EPA or the state will be responsible for cleaning up individual sites, taking into consideration, among other factors, some states' limited resources and enforcement authority, and (2) once a determination is made, notify the public as to which party is responsible for cleaning up each site; and
- correct the errors in the CERCLIS database that incorrectly classify sites as awaiting a National Priorities List decision and prevent the recurrence of such errors so that the database accurately reflects whether sites are awaiting a listing decision.

¹²Our April 1997 report, *Superfund: Stronger EPA-State Relationship Can Improve Cleanups and Reduce Costs* (GAO/RCED-97-77, Apr. 24, 1997), presents recommendations for EPA to address states' technical and resource needs so that they may take a lead role in cleaning up sites.

Agency Comments

We provided copies of a draft of this report to EPA for its review and comment. EPA provided written comments, which are reproduced in appendix VII. Overall, EPA agreed with the basic findings and recommendations of the report and stated that it believes that the report will be useful to the Congress, the agency, states, and others interested in the future of the Superfund program. EPA also said that it has made National Priorities List decisions for many of the sites in its hazardous waste site inventory and made significant progress toward cleaning up listed sites. We have added this information to the report. EPA also provided technical and clarifying comments that we have incorporated in the report as appropriate.

Scope and Methodology

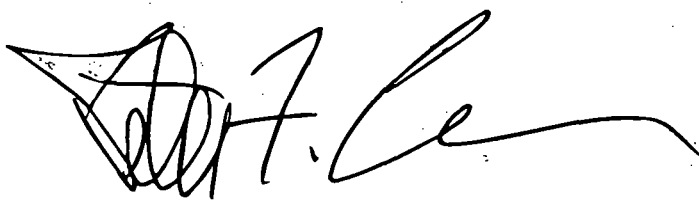
We attempted to obtain information on all 3,036 sites that EPA has identified as awaiting a National Priorities List decision, including 157 federal sites and 2,879 nonfederal sites. To obtain this information, we developed surveys that we sent to officials in EPA's 10 regional offices, the 50 states, the District of Columbia, Guam, Midway Island, the Northern Mariana Islands, Puerto Rico, the Navajo Nation, and 14 other federal agencies with responsibility for sites that are potentially eligible for the National Priorities List and awaiting EPA's decision on their disposition. These agencies include the departments of Agriculture, the Air Force, the Army, Defense, Energy, the Interior, the Navy, and Transportation; the Bureau of Land Management; the General Services Administration; the National Aeronautics and Space Administration; the U.S. Army Corps of Engineers; the U.S. Coast Guard; and the U.S. Forest Service. We also conducted a telephone survey with officials in 44 states to determine general information on their hazardous waste management programs and sites within their jurisdiction. (App. II discusses our scope and methodology in greater detail.)

We conducted our review between May 1997 and November 1998 in accordance with generally accepted government auditing standards.

As arranged with your office, unless you announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies of this report to the appropriate congressional committees; the Administrator, EPA; and the Director, Office of Management and Budget. We will also make copies available to others upon request. Please call me at (202) 512-6111 if you or

your staff have any questions. Major contributors to this report are listed in appendix VIII.

Sincerely yours,

A handwritten signature in black ink, appearing to read "P. F. Guerrero", with a stylized, looped flourish extending to the right.

Peter F. Guerrero
Director, Environmental
Protection Issues

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Abbreviations

| | |
|---------|--|
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act of 1980 |
| CERCLIS | Comprehensive Environmental Response, Compensation, and Liability Information System |
| EPA | Environmental Protection Agency |
| GAO | General Accounting Office |
| NPL | National Priorities List |
| PCB | polychlorinated biphenyl |
| SVOC | semivolatile organic compound |
| VOC | volatile organic compound |

The Environmental Protection Agency's Process for Placing Sites on the National Priorities List

The Environmental Protection Agency's (EPA) regulations outline a formal process for assessing hazardous waste sites and placing them on the National Priorities List (NPL). The process begins when EPA receives a report of a potentially hazardous waste site from a state government, a private citizen, or a responsible federal agency. EPA enters a potentially contaminated site into a database known as the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). EPA or the state in which the potentially contaminated site is located then conducts a preliminary assessment to decide whether the site poses a potential threat to human health and the environment. (According to EPA, about half of the assessments are conducted by states under funding from EPA.) If the preliminary assessment shows that contamination may exist, EPA or a state under an agreement with the agency may conduct a site inspection, a more detailed examination of possible contamination, and in some cases a follow-on examination called an expanded site inspection.

Using information from the preliminary assessment and site inspection, EPA applies its Hazard Ranking System to evaluate the site's potential threat to the public health and the environment. The system assigns each site a score ranging from 0 to 100 for use as a screening tool to determine whether the site should be considered for further action under Superfund. A site with a score of 28.5 or higher is considered for placement on the NPL. Once EPA determines that an eligible site warrants listing, the agency first proposes that the site be placed on the NPL and then, after receiving public comments, either lists it or removes it from further consideration. EPA may choose not to list a site if a state prefers to deal with it under its own cleanup program. Generally, EPA's policy is to not list sites on the NPL unless the governor of the state in which the site is located concurs with its listing.

Objectives, Scope, and Methodology

Our objectives in this review were to (1) determine the number of sites awaiting an NPL decision that remain potentially eligible for the list; (2) describe the characteristics of these sites, including their health and environmental risks; (3) determine the status of any actions to clean up these sites; and (4) collect the opinions of EPA and other federal and state officials on the likely final disposition of these sites, including the number of sites that are likely to be added to the Superfund program.

EPA's CERCLIS database indicates that as of October 8, 1997, 3,036 sites were potentially eligible for the NPL on the basis of a combination of criteria. These criteria include a preliminary hazardous ranking system score of 28.5 or above, the completion of a site inspection or the initiation of an expanded site inspection, and a status that neither eliminates the site from consideration for the NPL nor includes a proposal to list it. Because our objectives require data for each site, we did not sample the sites but included all 3,036 in our survey.

To obtain information on all 3,036 sites that EPA identified as awaiting an NPL decision, we developed three mail surveys. These surveys appear in appendix III. We sent the first of the surveys to officials in EPA's 10 regional offices responsible for evaluating the sites and making decisions about listing. Because state officials may have closer contact with some of the sites, we sent the second survey to officials in the 50 states, the District of Columbia, Puerto Rico, Guam, the Northern Mariana Islands, Midway Island, and the Navajo Nation (collectively referred to as states in this report). In addition, we sent a third survey to federal agencies that are responsible for cleaning up the 157 federally owned and/or operated sites that were classified as awaiting an NPL decision. We sent surveys on the 157 sites to 14 federal agencies, including the departments of Agriculture, the Air Force, the Army, Defense, Energy, the Interior, the Navy, and Transportation; the Bureau of Land Management; the General Services Administration; the National Aeronautics and Space Administration; the U.S. Army Corps of Engineers; the U.S. Coast Guard; and the U.S. Forest Service. The three surveys asked respondents for detailed information on the conditions at each site, including the site's current and potential risks, and their opinions on the involvement of potentially responsible parties and the likely outcome for the site's cleanup, including any potential for NPL listing.

We mailed our three surveys in November and December 1997 and received the final survey responses in September 1998. We received one or more survey responses for 3,023 (99.6 percent) of the 3,036 sites identified

by EPA as awaiting an NPL decision. On the basis of these responses, we identified 1,234 sites that are no longer eligible for the NPL or no longer awaiting an NPL decision. Because we received no survey responses for 13 sites, we could not determine whether they are still eligible for the NPL; therefore, we excluded these sites from our analyses. The remaining 1,789 sites are analyzed in this report as potentially eligible sites. Of these sites, 1,739 were nonfederal sites, and 50 were federally owned and/or operated sites.

Through our surveys, we obtained information from both EPA and the states on 1,319 (76 percent) of the 1,739 potentially eligible nonfederal sites. This information includes 1,326 state responses (76 percent) and 1,732 responses from EPA (99.6 percent). Similarly, we obtained information from at least two of the three possible respondents—EPA, other federal agencies, and states—for 45 (90 percent) of the 50 potentially eligible federal sites. Responsible federal agencies provided information for 39 (78 percent) of the 50 potentially eligible federal sites, states provided responses for 26 (52 percent) of the federal sites, and EPA regions provided responses for 49 (98 percent) of the federal sites.

Because 19 states—including California, Massachusetts, and New York, which account for 19 percent of the 3,036 sites—did not fully respond to our initial survey mailing, in July 1998 we sent a second survey to these states. In order to minimize the effort required for states to complete this follow-up survey, we eliminated sites that EPA and other federal agencies had identified as no longer eligible for the NPL. In addition, the follow-up survey included as a starting point the information on each site that EPA regions had provided in their responses. We asked state officials to confirm or correct the information provided to us by EPA regions. In the follow-up survey, we also repeated the original questions asked of the states but not of EPA regions. The original state survey was included as a reference source. This follow-up effort resulted in our receiving an additional 85 completed surveys from some states. However, despite numerous contacts, we received no survey responses from California, Massachusetts, Nebraska, and the District of Columbia. Rather than responding to our survey, California officials suggested that we obtain their responses to a brief 1-page survey on NPL-eligible sites conducted by the Association of State and Territorial Solid Waste Management Officials. Similarly, Massachusetts officials provided us copies of their responses to the Association's survey. However, because of differences in the format, specificity of answers, comparability of answers, and topics covered, we could not incorporate the results of that survey into our analyses. In

addition, New York State officials agreed to respond to only three survey questions for the sites in the state that EPA classified as awaiting an NPL decision. The three questions asked for information about whether sites would be listed on the NPL and what state cleanup activities had occurred at the sites. The responses to these questions were incorporated into our analyses.

While our overall survey response rate was high, our data for some states are incomplete. We did not receive fully completed state surveys for 491 of the 1,789 potentially eligible sites. Nearly three-quarters of these sites are located in California (125 sites) and Massachusetts (190 sites). In addition, we received only partial information from New York for 54 of its 56 potentially eligible sites. Table II.1 shows the 16 states that either did not respond to our survey or responded only in part, and the number and percentage of potentially eligible sites in each state for which we did not receive fully completed surveys.

Table II.1: Number and Percentage of Potentially Eligible Sites for Which Fully Completed Surveys Were Not Received, by State

| State | Number of potentially eligible sites in state | Potentially eligible sites for which fully completed surveys were not received | |
|--------------------------|---|--|------------|
| | | Number | Percent |
| Alabama | 15 | 2 | 13% |
| Alaska | 14 | 6 | 43% |
| California | 125 | 125 | 100% |
| District of Columbia | 1 | 1 | 100% |
| Florida | 195 | 5 | 3% |
| Georgia | 35 | 1 | 3% |
| Hawaii | 5 | 1 | 20% |
| Idaho | 11 | 4 | 36% |
| Maryland | 12 | 5 | 42% |
| Massachusetts | 190 | 190 | 100% |
| Navajo Nation | 14 | 9 | 64% |
| Nebraska | 19 | 19 | 100% |
| New Jersey | 112 | 66 | 59% |
| New York ^a | 56 | 54 | 96% |
| Pennsylvania | 38 | 1 | 3% |
| Washington | 17 | 2 | 12% |
| Total, 16 states | 859 | 491 | 57% |
| Total, all states | 1,789 | 491 | 27% |

^aNew York provided answers to three questions for 54 sites and returned completed surveys for 2 additional sites.

EPA regions I and V notified us that because of time and resource constraints, they had taken a generic approach to answering certain survey questions: That is, they answered certain questions in a standardized manner for all sites in the region rather than on a site-specific basis. Questions addressed in this manner included, among others, those relating to the likely placement of sites on the NPL and the risks posed by the sites. For example, for most sites, Region I answered our questions about the degree of human health or environmental risks posed by each site by responding that it is "too early to tell/more information is needed to answer" because, according to Region I officials, "risk assessments are not conducted for most CERCLIS sites, and thus the current risks posed by these sites are difficult to determine." EPA Region II responded to key survey questions in a similar manner. Consequently, because neither EPA regions I, II, and V nor three states in those regions—Massachusetts (190 sites), New Jersey (66 sites), and New York (54 sites)—provided complete survey information, we could not characterize the conditions at these sites with the same degree of accuracy as for other sites. For example, these three states account for 54 percent of the sites for which we could not obtain an official's estimate of the risks to human health and the environment.

We conducted pretests of our surveys with officials in six states, at two federal agencies, and in five EPA regional offices. Each pretest consisted of a visit with an official by GAO staff.¹³ We attempted to vary the types of sites for which we conducted pretests and the familiarity of the respondents with the sites. In some cases, the respondent used only site records to answer our survey. In other cases, the respondent knew most of the answers without consulting records. The pretest attempted to simulate the actual survey experience by asking the official to fill out the survey while GAO staff observed and took notes. Then the official was interviewed about the survey items to ensure that (1) the questions were readable and clear, (2) terms were precise, (3) the survey was not a burden that would result in a lack of cooperation, and (4) the survey appeared independent and unbiased. We made appropriate changes to the final survey on the basis of our pretesting. In addition to our pretesting, we obtained views on our surveys from managers in EPA's Office of Emergency and Remedial Response in Washington, D.C., which oversees the Superfund program. We incorporated comments from these reviews as appropriate.

In analyzing survey responses, we reviewed comments written by respondents on the surveys, including marginal comments, comments at the end of the survey, and comments when the respondents provided

¹³For Puerto Rico and the Navajo Nation, we contacted officials by telephone to conduct pretests.

explanations after checking "other." If a respondent's comment explaining the selection of "other" could reasonably be interpreted as another of the answer choices provided for the question, we revised the response as appropriate. In some cases, respondents' comments indicated a misunderstanding of our questions or answer choices. In these cases, where possible, we revised the response to reflect the appropriate answer. In other cases, respondents checked more than one answer; we then selected, where possible, what we considered to be the appropriate answer, on the basis of other responses in the survey or our own judgment. The procedures used in this editing process were documented in an internal 17-page document provided to all of the GAO reviewers of the survey responses. At least two reviewers analyzed each survey response, and the reviewers coordinated their efforts to ensure that all reviewers followed the established procedures. Both the original answers and the answers revised by reviewers were recorded.

In our surveys of officials of EPA regions, states, and federal agencies, some of the questions we asked about particular sites were identical. We combined the responses to these questions where possible in this report. If opinions differed, we used a set of criteria to combine answers. Namely, we chose the answer that seemed to reflect the most knowledge of the site. For site conditions, we assumed that any affirmative answer was the more knowledgeable. For example, if one respondent said that a site has groundwater contamination and the other respondent was unable to comment on that site's contamination, we recorded the site as having groundwater contamination. We also sought to avoid understatement of the risks posed by a site.¹⁴ Therefore, if respondents disagreed on the level of a site's risks, we selected the response indicating the more severe threat. For example, sites scored by any respondent as high-risk were recorded as high-risk sites. Furthermore, if a respondent indicated in any survey response that a site might be included on the NPL, we recorded the site as a possible candidate for the NPL. Finally, when opinions about the most likely outcome for a site were in conflict—for example, if the state thought that EPA would clean up a site but EPA thought the state would conduct the cleanup—we recorded the most likely outcome as unknown.

In addition to our mail surveys, we also conducted a telephone survey with officials in 44 states to determine general information on their hazardous waste management programs and sites within their states. State officials in

¹⁴In our surveys, we did not define "high," "average," or "low" risks; we left it to the officials of EPA, other federal agencies, and states, who make such determinations, to rank sites' risks according to their understanding of these terms.

Appendix II
Objectives, Scope, and Methodology

Idaho, New York, Missouri, Utah, Virginia, and Wyoming declined to participate in our telephone survey.

We conducted our review between May 1997 and November 1998 in accordance with generally accepted government auditing standards.

GAO Surveys on Potentially Eligible Sites

U.S. General Accounting Office

GAO Survey of NPL-Eligible Sites: U.S. EPA

Introduction

The U.S. General Accounting Office (GAO) examines issues for the U.S. Congress. We are conducting a review of contaminated sites that are considered "NPL-eligible." That is, these sites are found to be eligible for placement on the National Priorities List (NPL) after a site inspection by the U.S. Environmental Protection Agency (EPA). As part of our review, we are sending surveys to all EPA regions to request information on the individual sites located in their region. We are assessing the likelihood that sites will be placed on the NPL and the activities that are occurring to mitigate contamination at these sites.

This questionnaire asks about 1 of 3,000 NPL-eligible sites nationwide (as of October 8, 1997). In this questionnaire, we ask for information contained in your site inspection records. We are sending a similar survey to the appropriate state/territory/tribe to gain its perspective and to obtain additional information that they might have. Therefore, it is not necessary to consult with the state, territory, or tribe since they are also providing site information to us. Please have the most appropriate EPA staff fill out the questionnaire for the site indicated on the label.

Your response within 21 days of receiving this survey will help us avoid costly follow-ups. If the self-addressed business-reply envelope is missing, please return the questionnaire to the following address:

U.S. General Accounting Office
Attn: Vincent Price
441 G Street NW, Room 2T23
Washington, DC 20548

If you have any questions, please call Vince Price at (202) 512-6529.

Thank you for your assistance.

Site name and location:

(label)

1. Please fill out the following in case we need to contact the person completing this survey.

Name: _____

Phone: (_____) _____

2. Please answer each question below to determine whether this site should be included in our survey. (Please circle answers.)

a. Is site deferred to RCRA or the Nuclear Regulatory Commission? Yes No

b. Is site's preliminary Hazardous Ranking System score below 28.5? Yes No

c. Is site now designated as "no further remedial action planned" (NFRAP)? Yes No

d. Is site now addressed as part of an existing NPL site? Yes No

e. Is site proposed for the NPL? Yes No

3. Did you answer "yes" for any item above? (Check one.)

1. ☐ Yes--> Please stop here and return this survey to us.

2. ☐ No --> Please continue with survey.

Appendix III
GAO Surveys on Potentially Eligible Sites

Please note: Because we don't know whose information is most current, we are also asking the state/territory/tribe for answers to Questions 4-8, 13-15, 17, and 19. So, if you do not have the information for those questions, there is no need to contact the state/territory/tribe for the answers.

Effects of site's contamination

4. How does contamination at this site affect groundwater? (Check one.)

1. ☐ Actual contamination
2. ☐ Potential contamination
3. ☐ No potential or actual contamination identified
4. ☐ Need more information to answer
5. ☐ Other (Please explain.)

5. How does contamination at this site affect drinking water (surface water or groundwater sources)? (Check one.)

1. ☐ Actual contamination
2. ☐ Potential contamination
3. ☐ No potential or actual contamination identified
4. ☐ Need more information to answer
5. ☐ Other (Please explain.)

Site conditions

6. Are there any residents or regular employees within 0.5 miles of the site? (Check one.)

1. ☐ Residents only
2. ☐ Employees only
3. ☐ Both residents and employees
4. ☐ Neither residents nor employees
5. ☐ Need more information to answer
6. ☐ Other (Please explain.)

**Appendix III
GAO Surveys on Potentially Eligible Sites**

7. Do your region's records and/or your knowledge of the site indicate that this site's contamination contributes to any of the following? (Check one for each row.)

| (Check one for each row.) | Yes (1) | No (2) | Uncertain (3) | Other (Please explain.) (4) |
|--|------------|-----------|------------------|--------------------------------|
| Drinking water | | | | |
| a. Residents are advised not to use their wells. | | | | |
| b. Residents are advised to use filtered water. | | | | |
| c. Residents are advised to use bottled water. | | | | |
| d. Water supply is temporarily changed. | | | | |
| e. Water supply is permanently changed. | | | | |
| Other uses of water | | | | |
| f. Livestock drink contaminated water. | | | | |
| g. Crops are irrigated with contaminated water. | | | | |
| h. Fish could be unsafe to eat. | | | | |
| i. Fish, plants, or animals are sick/dying. | | | | |
| j. Recreation is stopped or restricted (e.g., fishing, swimming). | | | | |
| k. Residents, workers, etc., use water that fails to meet water quality standards (e.g., for bathing, watering vegetable gardens, or landscaping). | | | | |

**Appendix III
GAO Surveys on Potentially Eligible Sites**

| <i>(Check one for each row.)</i> | Yes (1) | No (2) | Uncertain (3) | Other (Please explain.) (4) |
|---|--------------------|-------------------|--------------------------|--|
| Soil/air | | | | |
| l. Residents/others should avoid exposure to contaminated dust or other particulates on some days. | | | | |
| m. Residents are advised not to let children play/dig in their yards. | | | | |
| n. Fences/barriers/signs are erected to keep residents or others out of contaminated areas. | | | | |
| o. Obnoxious odors are present. | | | | |
| Other conditions | | | | |
| p. Trespassers, including children, may come into direct contact with contaminants. | | | | |
| q. Workers or other legitimate visitors may come into direct contact with contaminants. | | | | |
| r. Institutional restrictions are necessary because of the site's contamination (for example, a deed restriction limits the property to industrial use or a legal limit is placed on well depth). | | | | |
| s. Residents/community have concerns about contamination or potential health effects caused by this site. | | | | |

Appendix III
GAO Surveys on Potentially Eligible Sites

EPA activity at the site

8. Has EPA overseen or funded any of the following activities at this site? (Check all that apply.)

1. ☐ Removing waste from the site
2. ☐ Taking other interim actions to mitigate the site's contamination
3. ☐ Constructing final cleanup
4. ☐ Other (Please specify.)

5. ☐ None of the above
--> Skip to Question 10.

9. In what calendar year did the above site activities begin? (See previous question.) (Enter two digits.)

19_____

State/territorial/tribal activity at site

10. Has the state/territorial/tribal agency participated in evaluating and assessing this site (e.g., gathering information, hiring contractors)? (Check one.)

1. ☐ Yes
2. ☐ No
3. ☐ Don't know

11. Has EPA funded any assessment activities by the state/territory/tribe at this site? (Check one.)

1. ☐ Yes
2. ☐ No
3. ☐ Don't know

Site risk

12. Please rate the *current risk* to human health and the environment posed by this site. (Check one.)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (Please explain.)

13. Please rate the *potential risk* to human health and the environment posed by this site if it is not cleaned up. (Check one.)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (Please explain.)

Appendix III
GAO Surveys on Potentially Eligible Sites

Status of site cleanup

14. As of September 30, 1997, will more cleanup be needed at this site to protect human health or the environment? *(Check one.)*

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ Cannot say; depends on future spread of contamination
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other *(Please explain.)*

15. Is cleanup currently under way that will complete all remediation needed at this site to protect human health and the environment? *(Check one.)*

1. ☐ Yes
2. ☐ No
3. ☐ Cleanup is under way but it is too early to tell if more will be needed
4. ☐ Other *(Please explain.)*

PRP involvement at site

16. If you expect participation by potentially responsible parties (PRPs) in this site's cleanup, under what program(s) would this activity occur? *(Check all that apply.)*

1. ☐ Do not expect PRP participation
2. ☐ CERCLA after placement on NPL
3. ☐ CERCLA without placement on NPL
4. ☐ RCRA (including delegated to state)
5. ☐ State/territorial/tribal program
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other *(Please specify.)*

17. Which one of the following *best* describes involvement of PRPs at this site? *(Check one.)*

1. ☐ No PRP likely (orphan site, etc.)
2. ☐ PRP(s) identified, but viability is uncertain
3. ☐ PRP(s) identified, but cooperation is uncertain
4. ☐ PRP(s) will participate in site's cleanup, but extent of participation uncertain
5. ☐ PRP(s) likely to clean up all or almost all of site's contamination
6. ☐ PRP(s) have already begun final cleanup and are expected to fund all or almost all of it
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other *(Please specify.)*

Appendix III
GAO Surveys on Potentially Eligible Sites

Opinions on site's placement on NPL

18. Considering EPA records and your professional opinion, will this site eventually be placed on the NPL? (Check one.)

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ Contamination no longer qualifies site for placement on the NPL
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please explain.)

19. In your professional opinion, which one of the following seems to be the most likely outcome for this site? (Check only one.)

1. ☐ Cleanup as an NPL site
2. ☐ No NPL listing, but EPA conducts or oversees cleanup (RCRA, removal, etc.)
3. ☐ No NPL listing, but the state/territory/tribe conducts or oversees cleanup (enforcement, voluntary cleanup, state-funded cleanup, etc.)
4. ☐ No cleanup conducted because not needed to protect human health and the environment
5. ☐ Further cleanup action is needed, but will not be conducted (due to limited resources, other priorities, etc.)
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (Please describe.)

**Appendix III
GAO Surveys on Potentially Eligible Sites**

20. In your opinion, to what extent does each of the following statements currently explain why this site has not already been proposed for the NPL? *(Check one for each row.)*

| <i>(Check one for each row.)</i> | Major factor (1) | Moderate factor (2) | Minor factor (3) | Not a factor (4) | No basis to judge (5) |
|--|------------------------|---------------------------|------------------------|------------------------|-----------------------------|
| a. We consider the state/territorial/tribal program to have the lead for the site. | | | | | |
| b. The state/territory/tribe told EPA that it plans to conduct or oversee cleanup. | | | | | |
| c. The state/territory/tribe is already conducting or overseeing further cleanup or assessment. | | | | | |
| d. State/territory/tribe is waiting for resources to proceed with cleanup/further assessment. | | | | | |
| e. We are waiting for the state/territory/tribe to provide necessary information. | | | | | |
| f. EPA's assessment resources are limited. | | | | | |
| g. EPA's resources for placing sites on the NPL are limited. | | | | | |
| h. EPA's cleanup resources are limited. | | | | | |
| i. The state/territory/tribe is opposing inclusion on the NPL. | | | | | |
| j. The local government/community is opposing inclusion on the NPL. | | | | | |
| k. We expect the site to be deferred to RCRA. | | | | | |
| l. Our removal program is working on the site. | | | | | |
| m. We are waiting for a federal agency (as PRP) to provide necessary information. | | | | | |
| n. We need to collect more information on the current risk at this site. | | | | | |
| o. Site is awaiting expanded site inspection (ESI). | | | | | |
| p. Site is undergoing ESI. | | | | | |
| q. Hazardous ranking system (HRS) package preparation is underway. | | | | | |
| r. Placing site on NPL is low priority because contamination does not <i>currently</i> threaten humans or the environment. | | | | | |
| s. We are waiting for a letter from the governor supporting placement on the NPL. | | | | | |

**Appendix III
GAO Surveys on Potentially Eligible Sites**

21. For each contaminant listed below, please indicate the media in which it is present at this site, according to the site inspection records. For the contaminants that are not present or not assessed, check box 1, "Contaminant not present/not assessed." (Check all that apply.)

| | (1) Contaminant not present/ not assessed | (2) Air | (3) Soil | (4) Groundwater | (5) Surface water | (6) Other (incl. sediment, biota) |
|---------------|--|------------|-------------|--------------------|-------------------------|--|
| a. Metals | | | | | | |
| b. Pesticides | | | | | | |
| c. VOCs | | | | | | |
| d. SVOCs | | | | | | |
| e. PCBs | | | | | | |
| f. Dioxin | | | | | | |
| g. Other | | | | | | |

Abbreviations:

VOCs -- volatile organic compounds
SVOCs -- semivolatile organic compounds
PCBs -- polychlorinated biphenyls

Appendix III
GAO Surveys on Potentially Eligible Sites

22. What is the approximate calendar year of the most recent information that you used to answer this survey? *(Check one.)*

1. ☐ 1990 or earlier
2. ☐ 1991
3. ☐ 1992
4. ☐ 1993
5. ☐ 1994
6. ☐ 1995
7. ☐ 1996
8. ☐ 1997
9. ☐ Other *(Please explain.)*

23. Please consider the information sources that you used to complete this survey and indicate the category below that most closely fits your situation. *(Check one.)*

1. ☐ Used site records only; have no other experience with this site
2. ☐ Used my own knowledge of this site and site records as needed
3. ☐ Other *(Please explain.)*

24. Thank you for your assistance with this survey. You may use the space below to add comments.

Appendix III
GAO Surveys on Potentially Eligible Sites

U.S. General Accounting Office

GAO Survey of NPL-Eligible Sites: States, Territories, and Tribes

Introduction

The U.S. General Accounting Office (GAO) is an agency that examines issues for the U.S. Congress. We are conducting a review of contaminated sites that are considered "NPL-eligible." That is, after a site inspection by the U.S. Environmental Protection Agency (EPA), these sites are found to be eligible for placement on the National Priorities List (NPL), also known as Superfund. As part of our review we are sending surveys to all states, territories, and Indian tribes to request information on the individual sites located in their jurisdictions. We are assessing the likelihood that sites will be placed on the NPL and the activities that are occurring to mitigate contamination at these sites.

This questionnaire asks about 1 of 3,000 NPL-eligible sites nationwide (as of October 8, 1997). Please make a reasonable effort to answer the questions. Because we are also sending a similar survey to U.S. EPA, we are especially interested in the information that they may not have on this site. If you cannot provide an answer to a question, check the box that indicates information is not available. It is not necessary to consult with U.S. EPA since they are also providing site information to us. Please have the most appropriate staff fill out each survey.

Your response within 21 days of receiving this survey will help us avoid costly follow-ups. If the self-addressed business-reply envelope is missing, please return the questionnaire to the following address:

U.S. General Accounting Office
Attn: Rosemary Torres Lerma
200 West Adams, Suite 700
Chicago, IL 60606

If you have any questions, please call Rosemary Torres Lerma at (312) 220-7644.

Thank you for your assistance.

Site name and location:

(label)

1. Please fill out the following in case we need to contact the person completing this survey.

Name: _____

State/Terr.: _____ (2-letters) or Tribe: _____

Agency/Dept. _____

Phone: (____) _____

Please note: Because we don't know whose information is most current, we are also asking U.S. EPA's regional office for answers to Questions 2-6, 10-12, 14, and 19. So, if you do not have the information for those questions, there is no need to contact U.S. EPA for the answers.

Effects of site's contamination

2. How does contamination at this site affect groundwater? (Check one.)

- 1. ☐ Actual contamination
- 2. ☐ Potential contamination
- 3. ☐ No potential or actual contamination identified
- 4. ☐ Need more information to answer
- 5. ☐ Other (Please explain.)

**Appendix III
GAO Surveys on Potentially Eligible Sites**

3. How does contamination at this site affect *drinking water* (surface water or groundwater sources)? (*Check one.*)

- 1. ☐ Actual contamination
- 2. ☐ Potential contamination
- 3. ☐ No potential or actual contamination identified
- 4. ☐ Need more information to answer
- 5. ☐ Other (*Please explain.*)

Site conditions

4. Are there any residents or regular employees within 0.5 miles of the site? (*Check one.*)

- 1. ☐ Residents only
- 2. ☐ Employees only
- 3. ☐ Both residents and employees
- 4. ☐ Neither residents nor employees
- 5. ☐ Need more information to answer
- 6. ☐ Other (*Please explain.*)

5. Do your state's/territory's/tribe's records and/or your knowledge of the site indicate that this site's contamination contributes to any of the following? (*Check one for each row.*)

| (<i>Check one for each row.</i>) | Yes (1) | No (2) | Uncertain (3) | Other (<i>Please explain.</i>) (4) |
|--|------------|-----------|------------------|---|
| Drinking water | | | | |
| a. Residents are advised not to use their wells. | | | | |
| b. Residents are advised to use filtered water. | | | | |
| c. Residents are advised to use bottled water. | | | | |
| d. Water supply is temporarily changed. | | | | |
| e. Water supply is permanently changed. | | | | |

**Appendix III
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| <i>(Check one for each row.)</i> | Yes (1) | No (2) | Uncertain (3) | Other <i>(Please explain.)</i> (4) |
|---|------------|-----------|------------------|---------------------------------------|
| Other uses of water | | | | |
| f. Livestock drink contaminated water. | | | | |
| g. Crops are irrigated with contaminated water. | | | | |
| h. Fish could be unsafe to eat. | | | | |
| i. Fish, plants, or animals are sick/dying. | | | | |
| j. Recreation is stopped or restricted (e.g., fishing, swimming). | | | | |
| k. Residents, workers, etc., use water that fails to meet water quality standards (e.g., for bathing, watering vegetable gardens, or landscaping). | | | | |
| Soil/air | | | | |
| l. Residents/others should avoid exposure to contaminated dust or other particulates on some days. | | | | |
| m. Residents are advised not to let children play/dig in their yards. | | | | |
| n. Fences/barriers/signs are erected to keep residents or others out of contaminated areas. | | | | |
| o. Obnoxious odors are present. | | | | |
| Other conditions | | | | |
| p. Trespassers, including children, may come into direct contact with contaminants. | | | | |
| q. Workers or other legitimate visitors may come into direct contact with contaminants. | | | | |
| r. Institutional restrictions are necessary because of the site's contamination (for example, a deed restriction limits the property to industrial use or a legal limit is placed on well depth). | | | | |
| s. Residents/community have concerns about contamination or potential health effects from this site. | | | | |

Appendix III
GAO Surveys on Potentially Eligible Sites

10. Please rate the *potential risk* to human health and the environment posed by this site if it is not cleaned up. (Check one.)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (Please explain.)

Status of cleanup

11. As of September 30, 1997, will more cleanup be needed at this site to protect human health or the environment? (Check one.)

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ Cannot say; depends on future spread of contamination
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please explain.)

12. Is cleanup currently under way that will complete all remediation needed at this site to protect human health and the environment? (Check one.)

1. ☐ Yes
2. ☐ No
3. ☐ Cleanup is under way but it is too early to tell if more will be needed
4. ☐ Other (Please explain.)

PRP Involvement

13. If you expect participation by PRP(s) in this site's cleanup, under what program(s) would this activity occur? (Check all that apply.)¹

1. ☐ Do not expect PRP participation
2. ☐ State/territorial/tribal voluntary cleanup
3. ☐ State/territorial/tribal enforcement (using an order, decree, or other legal agreement)
4. ☐ Other state/territorial/tribal program (solid waste, water resources, etc.)
5. ☐ U.S. EPA program
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (Please specify.)

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GAO Surveys on Potentially Eligible Sites

14. Which one of the following *best* describes involvement of PRPs at this site? (Check one.)

1. ☐ No PRP likely (orphan site, etc.)
 →(Skip to Question 16.)
2. ☐ PRP(s) identified, but viability is uncertain
3. ☐ PRP(s) identified, but cooperation is uncertain
4. ☐ PRP(s) will participate in site's cleanup, but extent of participation uncertain
5. ☐ PRP(s) likely to clean up all or almost all of site's contamination
6. ☐ PRP(s) have already begun final cleanup and are expected to fund all or almost all of it
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please specify.)

15. To what extent is the cooperation of this site's PRP(s) better or worse because of the possibility of the site's inclusion on the NPL? (Check one.)

1. ☐ No viable PRP known
2. ☐ Much better
3. ☐ Better
4. ☐ No impact
5. ☐ Worse
6. ☐ Much worse
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please explain.)

16. If you do not have a PRP who is likely to fund cleanup at this site, do you anticipate funding problems if your state/territory/tribe must pay for the cleanup? (Check one.)

1. ☐ Does not apply: PRP(s) likely to fund cleanup
2. ☐ Definitely yes
3. ☐ Probably yes
4. ☐ Uncertain
5. ☐ Probably no
6. ☐ Definitely no
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please explain.)

Opinions on site's placement on NPL

17. Considering your state's/territory's/tribe's environmental cleanup programs (legal authority, funding, and personnel), do you think this site will eventually be placed on the NPL? (Check one.)

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ Contamination no longer qualifies site for placement on the NPL
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please explain.)

Appendix III
GAO Surveys on Potentially Eligible Sites

18. Which of the following best describes your state's/territory's/tribe's departmental position on NPL listing for this site? *(Check one.)*

- 1. ☐ Support
- 2. ☐ Neutral
- 3. ☐ Oppose
- 4. ☐ Contamination no longer qualifies site for placement on the NPL
- 5. ☐ Too early to tell/Need more information to answer
- 6. ☐ Other *(Please explain.)*

19. In your professional opinion, which *one* of the following seems to be the *most likely* outcome for this site? *(Check only one.)*

- 1. ☐ Cleanup as an NPL site
- 2. ☐ No NPL listing, but U.S. EPA conducts or oversees cleanup (RCRA, removal, etc.)
- 3. ☐ No NPL listing, but our state/territory/tribe conducts or oversees cleanup (enforcement, voluntary cleanup, state-funded cleanup, etc.)
- 4. ☐ No cleanup conducted because not needed to protect human health and the environment
- 5. ☐ Further cleanup action is needed, but will not be conducted (due to limited resources, other priorities, etc.)
- 6. ☐ Too early to tell/Need more information to answer
- 7. ☐ Other *(Please describe.)*

20. In what calendar year do you expect the construction of final cleanup remedy will be completed? *(Check one.)*

- 1. ☐ 1997
- 2. ☐ 1998
- 3. ☐ 1999
- 4. ☐ 2000-2003
- 5. ☐ 2004-2009
- 6. ☐ 2010 or later
- 7. ☐ Cleanup remedy already completed
- 8. ☐ Cleanup remedy not needed to protect human health and the environment
- 9. ☐ Too early to tell/Need more information to answer
- 10. ☐ Other *(Please explain.)*

Appendix III
GAO Surveys on Potentially Eligible Sites

Sources of Information

21. Considering your answers to all survey questions, what is the most approximate calendar year of the most recent information that you provided for this site? *(Check one.)*

1. ☐ 1990 or earlier
2. ☐ 1991
3. ☐ 1992
4. ☐ 1993
5. ☐ 1994
6. ☐ 1995
7. ☐ 1996
8. ☐ 1997
9. ☐ Other *(Please explain.)*

22. Please consider the information sources that you used to complete this survey and indicate the category below that most closely fits your situation. *(Check one.)*

1. ☐ Used site records only; no other experience with this site
2. ☐ Used my own knowledge of this site and site records as needed
3. ☐ Other *(Please explain.)*

23. Thank you for your assistance with this survey. You may use the space below to add comments.

Appendix III
GAO Surveys on Potentially Eligible Sites

U.S. General Accounting Office

GAO Survey of NPL-Eligible Sites: Federal Agencies

Introduction

The U.S. General Accounting Office (GAO) is an agency that examines issues for the U.S. Congress. We are conducting a review of contaminated sites that are considered "NPL-eligible." That is, after a site inspection (SI), these sites are found to be eligible for placement on the Superfund National Priorities List (NPL). As part of our review we are sending surveys to federal agencies with such sites at their facilities. We are assessing the likelihood that these federal facilities will be placed on the NPL and seeking to identify the activities that are occurring to mitigate contamination at these sites.

This questionnaire asks about 1 of 156 federal, NPL-eligible facilities nationwide (as of October 8, 1997). We are interested the sites, or areas, at your facility that are eligible for placement on the NPL. Because we are also sending a similar survey to U.S. EPA and the state in which your facility is located, we are especially interested in the information that only your agency can provide about this facility. If you cannot provide an answer to a question, check the box that indicates information is not available. It is not necessary to consult with U.S. EPA or the state to obtain the information. Please ask your most appropriate staff to fill out each survey.

Your response within 21 days of receiving this survey will help us avoid costly follow-ups. If the self-addressed business-reply envelope is missing, please return the questionnaire to the following address:

U.S. General Accounting Office
Attn: Vincent Price
441 G Street NW, Room 1826
Washington, DC 20548

If you have any questions, please call Vince Price at (202) 512-6529.

Thank you for your assistance.

Facility name and location:

(label)

1. Please fill out the following in case we need to contact the person completing this survey.

Name: _____

Agency: _____

Phone: (____) _____

Before you fill out this survey, please note:

(1) By this facility's eligible sites, we mean the areas of this facility, or this site on public lands, that are considered eligible for placement on the NPL. These sites should be considered as a group.

(2) Because we do not know whose information is most current, U.S. EPA's regional office and the state are also providing answers to Questions 2-5, 8-11, and 14. So, there is no need to contact U.S. EPA or the state for those answers.

Effects of site contamination

2. How does contamination at this facility's eligible sites affect groundwater? ("Eligible sites" are the areas of your facility that are considered eligible for placement on the NPL.) (Check one.)

1. ☐ Actual contamination
2. ☐ Potential contamination
3. ☐ No potential or actual contamination identified
4. ☐ Need more information to answer
5. ☐ Other (Please explain.)

**Appendix III
GAO Surveys on Potentially Eligible Sites**

3. How does contamination at this facility's eligible sites affect drinking water (surface water or groundwater sources)? (Check one.)

1. ☐ Actual contamination
2. ☐ Potential contamination
3. ☐ No potential or actual contamination identified
4. ☐ Need more information to answer
5. ☐ Other (Please explain.)

Site conditions

4. Are there any residents or regular employees within 0.5 miles of this facility's eligible sites? (Check one.)

1. ☐ Residents only
2. ☐ Employees only
3. ☐ Both residents and employees
4. ☐ Neither residents nor employees
5. ☐ Need more information to answer
6. ☐ Other (Please explain.)

5. Do your agency's records and/or your knowledge of your facility indicate that contamination at this facility's eligible sites contributes to any of the following? (Check one for each row.)

| (Check one for each row.) | Yes (1) | No (2) | Uncertain (3) | Other (Please explain.) (4) |
|--|------------|-----------|------------------|--------------------------------|
| Drinking water | | | | |
| a. Residents are advised not to use their wells. | | | | |
| b. Residents are advised to use filtered water. | | | | |
| c. Residents are advised to use bottled water. | | | | |
| d. Water supply is temporarily changed. | | | | |
| e. Water supply is permanently changed. | | | | |

**Appendix III
GAO Surveys on Potentially Eligible Sites**

| <i>(Check one for each row.)</i> | Yes (1) | No (2) | Uncertain (3) | Other <i>(Please explain.)</i> (4) |
|---|------------|-----------|------------------|---------------------------------------|
| Other uses of water | | | | |
| f. Livestock drink contaminated water. | | | | |
| g. Crops are irrigated with contaminated water. | | | | |
| h. Fish could be unsafe to eat. | | | | |
| i. Fish, plants, or animals are sick/dying. | | | | |
| j. Recreation is stopped or restricted (e.g., fishing, swimming). | | | | |
| k. Residents, workers, etc., use water that fails to meet water quality standards (e.g., for bathing, watering vegetable gardens, or landscaping). | | | | |
| Soil/air | | | | |
| l. Residents/others should avoid exposure to contaminated dust or other particulates on some days. | | | | |
| m. Residents are advised not to let children play/dig in their yards. | | | | |
| n. Fences/barriers/signs are erected to keep residents or others out of contaminated areas. | | | | |
| o. Obnoxious odors are present. | | | | |
| Other conditions | | | | |
| p. Trespassers, including children, may come into direct contact with contaminants. | | | | |
| q. Workers or other legitimate visitors may come into direct contact with contaminants. | | | | |
| r. Institutional restrictions are necessary because of the sites' contamination (for example, a deed restriction limits the property to industrial use or a legal limit is placed on well depth). | | | | |
| s. Residents/community have concerns about contamination or potential health effects from this facility's eligible sites. | | | | |

Appendix III
GAO Surveys on Potentially Eligible Sites

Federal agency activities

6. Has your agency performed any of the following activities at this facility's eligible sites? (*Check all that apply.*)

1. ☐ No agency actions taken yet
 --> Skip to Question 8.
2. ☐ Investigating/Assessing eligible site
3. ☐ Removing waste from eligible site
4. ☐ Taking other interim actions to mitigate an eligible site's contamination
5. ☐ Constructing final cleanup
6. ☐ Other (*Please specify.*)

7. Does your agency expect to begin any *future* on-site cleanup activities (removal or remediation) at this facility's eligible sites? (*Check one.*)

1. ☐ No
2. ☐ Yes--> a. In what calendar year?
 (*Check one.*)
 1. ☐ 1997
 2. ☐ 1998
 3. ☐ 1999
 4. ☐ 2000-2003
 5. ☐ 2004-2009
 6. ☐ 2010 or later
 7. ☐ Don't know
3. ☐ Too early to tell
4. ☐ Other (*Please explain.*)

Site risks

8. Please rate the *current risk* to human health and the environment posed by this facility's eligible sites. (*Check one.*)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (*Please explain.*)

9. Please rate the *potential risk* to human health and the environment posed by this facility's eligible sites if they are not cleaned up. (*Check one.*)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (*Please explain.*)

Appendix III
GAO Surveys on Potentially Eligible Sites

State/territorial/tribal activities

6. Has your state/territory/tribe overseen or funded any of the following activities at this site? (*Check all that apply.*)

1. ☐ No state/territorial/tribal program actions taken yet
--> Skip to Question 8.
2. ☐ Investigating/Assessing site
3. ☐ Removing waste from the site
4. ☐ Taking other interim actions to mitigate the site's contamination
5. ☐ Constructing final cleanup
6. ☐ Other (*Please specify.*)

7. Under what state/territorial/tribal program did the above activities (reported in Question 6) occur? (*Check all that apply.*)

1. ☐ Potentially responsible party (PRP) activity under an enforcement program
2. ☐ PRP activity under a voluntary cleanup program
3. ☐ PRP activity under another state/territorial/tribal program
4. ☐ Activity funded by state/territory/tribe
5. ☐ Activity funded by U.S. EPA
6. ☐ Other (*Please specify.*)

8. Do you expect to begin any *future* on-site cleanup activities (removal or remediation) at this site, either by the PRP or by your state/territory/tribe? (*Check one.*)

1. ☐ No
2. ☒ Yes--> a. In what calendar year? (*Check one.*)
 1. ☐ 1997
 2. ☐ 1998
 3. ☐ 1999
 4. ☐ 2000-2003
 5. ☐ 2004-2009
 6. ☐ 2010 or later
 7. ☐ Don't know
3. ☐ Too early to tell
4. ☐ Other (*Please explain.*)

Site risk

9. Please rate the *current* risk to human health and the environment posed by this site. (*Check one.*)

1. ☐ Very high risk
2. ☐ High
3. ☐ Average
4. ☐ Low
5. ☐ Very low risk
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other (*Please explain.*)

Appendix III
GAO Surveys on Potentially Eligible Sites

Status of cleanup

10. As of September 30, 1997, will more cleanup be needed at this facility's eligible sites to protect human health or the environment? *(Check one.)*

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ *Cannot say; depends on future spread of contamination*
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other *(Please explain.)*

11. Is cleanup currently under way that will complete all remediation needed at this facility's eligible sites to protect human health and the environment? *(Check one.)*

1. ☐ Yes
2. ☐ No
3. ☐ Cleanup is under way but it is too early to tell if more will be needed
4. ☐ Other *(Please explain.)*

12. Do you anticipate funding problems for the cleanup? *(Check one.)*

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ Too early to tell/Need more information to answer
7. ☐ Other *(Please explain.)*

Opinions on facility placement on NPL

13. In your professional opinion, do you think this facility will eventually be placed on the NPL? *(Check one.)*

1. ☐ Definitely yes
2. ☐ Probably yes
3. ☐ Uncertain
4. ☐ Probably no
5. ☐ Definitely no
6. ☐ *Contamination no longer qualifies facility for placement on the NPL*
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other *(Please explain.)*

Appendix III
GAO Surveys on Potentially Eligible Sites

14. In your professional opinion, which *one* of the following seems to be the *most likely* outcome for this facility's eligible sites? (Check only one.)

1. ☐ Cleanup as an NPL site
2. ☐ No NPL listing, but our agency conducts cleanup under both EPA and state oversight
3. ☐ No NPL listing, but our agency conducts cleanup under EPA oversight
4. ☐ No NPL listing, but our agency conducts cleanup under state oversight
5. ☐ No cleanup conducted because not needed to protect human health and the environment
6. ☐ Further cleanup action is needed, but will not be conducted (due to limited resources, other priorities, etc.)
7. ☐ Too early to tell/Need more information to answer
8. ☐ Other (Please describe.)

15. In what calendar year do you expect the construction of the final cleanup remedy will be completed? (Check one.)

1. ☐ 1997
2. ☐ 1998
3. ☐ 1999
4. ☐ 2000-2003
5. ☐ 2004-2009
6. ☐ 2010 or later
7. ☐ Cleanup remedy already completed
8. ☐ Cleanup remedy not needed to protect human health and the environment
9. ☐ Too early to tell/Need more information to answer
10. ☐ Other (Please explain.)

Appendix III
GAO Surveys on Potentially Eligible Sites

Sources of Information

16. Considering your answers to all survey questions, what is the approximate calendar year of the most recent information that you provided for any of this facility's eligible sites? (Check one.)

1. ☐ 1990 or earlier
2. ☐ 1991
3. ☐ 1992
4. ☐ 1993
5. ☐ 1994
6. ☐ 1995
7. ☐ 1996
8. ☐ 1997
9. ☐ Other (Please explain.)

17. Please consider the information sources that you used to complete this survey and indicate the category below that most closely fits your situation. (Check one.)

1. ☐ Used site records only; no other experience with this facility's eligible sites
2. ☐ Used my own knowledge of this facility's eligible sites and site records as needed
3. ☐ Other (Please explain.)

18. Thank you for your assistance with this survey. You may use the space below to add comments.

Numbers of Hazardous Waste Sites That May Be Eligible for Placement on the National Priorities List

The 1,789 sites that are potentially eligible for the NPL include 1,739 nonfederal sites and 50 federal facilities. Among the 1,789 sites, there are (1) 686 sites at which some cleanup activities have taken place or are currently being conducted, but the final cleanup remedy is not yet under way, and (2) 1,103 sites for which no substantive cleanup activities have been reported or no information on cleanup progress is available.

State Locations of Sites Potentially Eligible for the NPL and Their Cleanup Status

The 1,789 sites that are potentially eligible for placement on the NPL are located in 48 states, the District of Columbia, Puerto Rico, and the Northern Mariana Islands and under the jurisdiction of the Navajo Nation (hereinafter referred to as states). Table IV.1 shows, for each state, the number of (1) sites classified in EPA's inventory as awaiting an NPL decision as of October 8, 1997, (2) sites that our surveys indicate are unlikely to become eligible for the NPL, (3) potentially eligible sites at which some cleanup activities have been conducted, (4) potentially eligible sites at which there has been no reported cleanup progress or for which no information on cleanup progress is available, and (5) sites for which we received no surveys.

Table IV.1: Sites Classified as Awaiting an NPL Decision in Each State, by Eligibility for Listing and Status of Cleanup Progress

| State | Number of sites classified as awaiting an NPL decision | Number of sites unlikely to become eligible for the NPL | Number of potentially eligible sites with some cleanup activities | Number of potentially eligible sites with no reported cleanup activities | Number of sites for which no surveys were received |
|-----------------------------------|--|---|---|--|--|
| Alabama | 25 | 10 | 7 | 8 | 0 |
| Alaska | 28 | 14 | 8 | 6 | 0 |
| Arizona | 34 | 16 | 10 | 8 | 0 |
| Arkansas | 4 | 3 | 0 | 1 | 0 |
| California ^a | 189 | 64 | 51 | 74 | 0 |
| Colorado | 30 | 12 | 10 | 6 | 2 |
| Connecticut | 290 | 74 | 98 | 118 | 0 |
| Delaware | 1 | 1 | 0 | 0 | 0 |
| District of Columbia ^a | 1 | 0 | 0 | 1 | 0 |
| Florida | 269 | 74 | 85 | 110 | 0 |
| Georgia | 74 | 39 | 8 | 27 | 0 |
| Guam | 2 | 2 | 0 | 0 | 0 |
| Hawaii | 17 | 12 | 4 | 1 | 0 |
| Idaho | 16 | 5 | 5 | 6 | 0 |
| Illinois | 207 | 95 | 43 | 69 | 0 |

(continued)

**Appendix IV
Numbers of Hazardous Waste Sites That
May Be Eligible for Placement on the
National Priorities List**

| State | Number of sites classified as awaiting an NPL decision | Number of sites unlikely to become eligible for the NPL | Number of potentially eligible sites with some cleanup activities | Number of potentially eligible sites with no reported cleanup activities | Number of sites for which no surveys were received |
|----------------------------|---|--|--|---|---|
| Indiana | 54 | 21 | 15 | 18 | 0 |
| Iowa | 33 | 29 | 4 | 0 | 0 |
| Kansas | 37 | 28 | 4 | 5 | 0 |
| Kentucky | 20 | 15 | 2 | 3 | 0 |
| Louisiana | 10 | 6 | 4 | 0 | 0 |
| Maine | 56 | 28 | 17 | 11 | 0 |
| Maryland | 20 | 8 | 4 | 8 | 0 |
| Massachusetts ^a | 201 | 11 | 19 | 171 | 0 |
| Michigan | 50 | 22 | 18 | 10 | 0 |
| Midway Island | 1 | 1 | 0 | 0 | 0 |
| Minnesota | 17 | 6 | 6 | 5 | 0 |
| Mississippi | 9 | 4 | 1 | 2 | 2 |
| Missouri | 91 | 73 | 7 | 11 | 0 |
| Montana | 11 | 2 | 7 | 2 | 0 |
| Navajo Nation | 14 | 0 | 0 | 14 | 0 |
| Nebraska ^a | 36 | 16 | 4 | 15 | 1 |
| Nevada | 12 | 8 | 3 | 1 | 0 |
| New Hampshire | 42 | 24 | 9 | 9 | 0 |
| New Jersey | 172 | 60 | 49 | 63 | 0 |
| New Mexico | 15 | 7 | 6 | 2 | 0 |
| New York ^a | 192 | 135 | 15 | 41 | 1 |
| North Carolina | 57 | 18 | 21 | 18 | 0 |
| North Dakota | 4 | 2 | 1 | 1 | 0 |
| Northern Mariana Islands | 1 | 0 | 1 | 0 | 0 |
| Ohio | 79 | 25 | 23 | 31 | 0 |
| Oklahoma | 7 | 4 | 1 | 2 | 0 |
| Oregon | 29 | 7 | 6 | 16 | 0 |
| Pennsylvania | 73 | 35 | 18 | 20 | 0 |
| Puerto Rico | 16 | 3 | 4 | 9 | 0 |
| Rhode Island | 121 | 14 | 23 | 84 | 0 |
| South Carolina | 45 | 32 | 8 | 5 | 0 |
| South Dakota | 8 | 6 | 2 | 0 | 0 |
| Tennessee | 102 | 51 | 19 | 32 | 0 |
| Texas | 21 | 18 | 1 | 2 | 0 |
| Utah | 48 | 17 | 8 | 16 | 7 |
| Vermont | 30 | 16 | 5 | 9 | 0 |

(continued)

**Appendix IV
Numbers of Hazardous Waste Sites That
May Be Eligible for Placement on the
National Priorities List**

| State | Number of sites classified as awaiting an NPL decision | Number of sites unlikely to become eligible for the NPL | Number of potentially eligible sites with some cleanup activities | Number of potentially eligible sites with no reported cleanup activities | Number of sites for which no surveys were received |
|---------------|---|--|--|---|---|
| Virginia | 22 | 8 | 2 | 12 | 0 |
| Washington | 28 | 11 | 8 | 9 | 0 |
| West Virginia | 11 | 7 | 4 | 0 | 0 |
| Wisconsin | 53 | 34 | 8 | 11 | 0 |
| Wyoming | 1 | 1 | 0 | 0 | 0 |
| Total | 3,036 | 1,234 | 686 | 1,103 | 13 |

*California, the District of Columbia, Massachusetts, and Nebraska did not respond to our surveys. For these states, the data in table IV.1 are based on EPA's survey responses alone and, for that reason, may be less reliable than for states having responses from both EPA and states. New York provided responses to only a few questions in our survey.

Federal Agencies Responsible for Potentially Eligible Federal Facilities

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), federal agencies are responsible, under EPA's supervision, for evaluating and cleaning up properties under their jurisdiction. As required by CERCLA, EPA has established a Federal Agency Hazardous Waste Compliance Docket that lists federal facilities awaiting evaluation for possible cleanup. Once a federal facility is listed on the docket, the responsible agency then conducts a preliminary assessment to gather data on the facility and performs a site inspection, which may involve taking and analyzing samples, to learn more about potential contamination there.

Ten federal agencies other than EPA have primary responsibility for managing the 50 federal facilities that are potentially eligible for the NPL. Table IV.2 presents for each agency the number of (1) sites classified in EPA's inventory as awaiting an NPL decision as of October 8, 1997, (2) sites that our surveys indicate are unlikely to become eligible for the NPL, (3) potentially eligible sites at which some cleanup activities have been conducted, and (4) potentially eligible sites at which there has been no reported cleanup progress or for which no information on cleanup progress is available.

Appendix IV
Numbers of Hazardous Waste Sites That
May Be Eligible for Placement on the
National Priorities List

Table IV.2: Federal Facilities That Are Classified as Awaiting an NPL Decision Under Each Agency, by Eligibility for Listing and Status of Cleanup Progress

| Responsible federal agency | Number of sites classified as awaiting an NPL decision | Number of sites unlikely to become eligible for the NPL | Number of potentially eligible sites with some cleanup activities | Number of potentially eligible sites with no reported cleanup activities |
|---|--|---|---|--|
| Bureau of Land Management | 4 | 2 | 1 | 1 |
| Corps of Engineers | 1 | 1 | 0 | 0 |
| General Services Administration | 2 | 1 | 1 | 0 |
| Department of Agriculture | 7 | 3 | 3 | 1 |
| Department of the Air Force | 41 | 29 | 8 | 4 |
| Department of the Army | 28 | 19 | 5 | 4 |
| Department of Defense | 4 | 3 | 0 | 1 |
| Department of Energy | 6 | 4 | 1 | 1 |
| Department of the Interior | 11 | 8 | 1 | 2 |
| Department of the Navy | 45 | 30 | 13 | 2 |
| Department of Transportation | 3 | 2 | 0 | 1 |
| National Aeronautics and Space Administration | 3 | 3 | 0 | 0 |
| U.S. Coast Guard | 1 | 1 | 0 | 0 |
| U.S. Forest Service | 1 | 1 | 0 | 0 |
| Total | 157^a | 107 | 33 | 17 |

^aAt least one survey response was received for each federal site.

Additional Information on Potentially Eligible Sites That Have Undergone Some Cleanup Actions

We asked officials of EPA, other federal agencies, and states about the cleanup actions that have been conducted at the potentially eligible sites. These activities include interim measures to mitigate the contamination, such as removing waste or taking action to protect people against contaminated drinking water sources. These actions were not considered by the officials to be final cleanup remedies.

As figure V.1 shows, of the total 1,789 potentially eligible sites, 13 percent exhibit one or more of the conditions associated with contaminated drinking water sources. The majority of these sites have undergone some cleanup activities. Survey data indicate that some cleanup activities have occurred at 77 percent of the sites for which nearby residents are advised not to use wells and at 72 percent of the sites for which residents are advised to use bottled water.

Appendix V
Additional Information on Potentially
Eligible Sites That Have Undergone Some
Cleanup Actions

Figure V.1: Cleanup Status of
Potentially Eligible Sites With 10 Site
Conditions

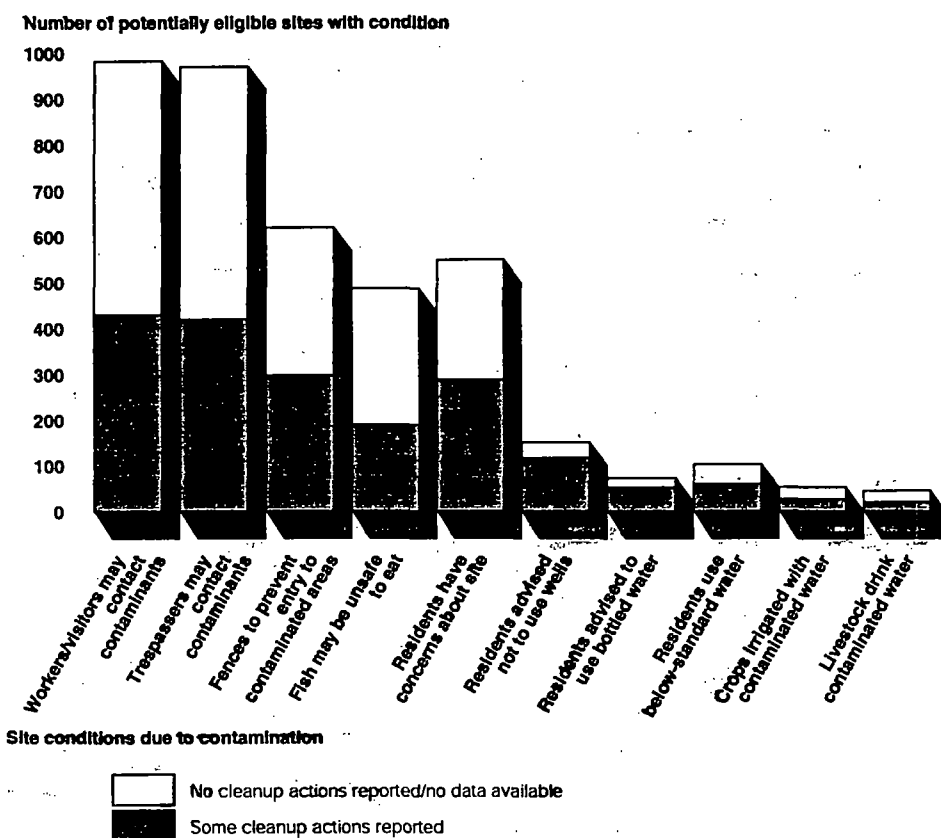


Figure V.1 includes, among other factors, the five most prevalent adverse conditions identified by officials responding to our surveys. As this figure indicates, the majority of the sites with these conditions reportedly have made no cleanup progress, or no information on cleanup progress is available. No known cleanup actions have been taken at (1) 56 percent of the sites at which workers or visitors may come into direct contact with contaminants; (2) 57 percent of the sites at which trespassers may come into direct contact with contaminants; (3) 52 percent of the sites with fences, barriers, and/or signs to prevent entry into contaminated areas; (4) 61 percent of the sites associated with fish that may be unsafe to eat; and (5) 48 percent of the sites about which nearby residents have expressed some health concerns.

States' Financial Capabilities to Clean Up Potentially Eligible Sites

During our telephone survey of officials in 44 states¹⁵ to obtain general information on their hazardous waste management programs, officials gave their opinions about their state's capability to fund cleanup activities if responsible parties were not willing or able to pay for these actions. Officials of about a quarter of the responding states told us that their state's financial capability to clean up potentially eligible sites, if necessary, is excellent or good, and more than half said that their state's ability to fund these cleanups is poor or very poor. Table VI.1 presents, by state, the responding officials' assessments of each state's ability to fund cleanup activities at potentially eligible sites.

Table VI.1: State Officials' Assessments of States' Financial Capabilities to Clean Up Potentially Eligible Sites

| State ^a | State officials' assessment of state's financial capability to clean up potentially eligible sites |
|--------------------|--|
| Alabama | Very poor |
| Alaska | Excellent |
| Arizona | Excellent |
| Arkansas | Good |
| California | Fair |
| Colorado | Very poor |
| Connecticut | Poor |
| Delaware | Excellent |
| Florida | Fair |
| Georgia | Poor |
| Hawaii | Fair |
| Illinois | Fair |
| Indiana | Very poor |
| Iowa | Very poor |
| Kansas | Very poor |
| Kentucky | Good |
| Louisiana | Poor |
| Maine | Poor |
| Maryland | Other ^b |
| Massachusetts | Fair |
| Michigan | Excellent |
| Minnesota | Good |
| Mississippi | Very poor |
| Montana | Very poor |

(continued)

¹⁵State officials in Idaho, New York, Missouri, Utah, Virginia, and Wyoming declined to participate in our telephone survey.

Appendix VI
States' Financial Capabilities to Clean Up
Potentially Eligible Sites

| State^a | State officials' assessment of state's financial capability to clean up potentially eligible sites |
|--------------------------|---|
| Nebraska | Very poor |
| Nevada | Poor |
| New Hampshire | Poor |
| New Jersey | Good |
| New Mexico | Very poor |
| North Carolina | Poor |
| North Dakota | Poor |
| Ohio | Very poor |
| Oklahoma | Very poor |
| Oregon | Fair |
| Pennsylvania | Excellent |
| Rhode Island | Poor |
| South Carolina | Good |
| South Dakota | Other ^b |
| Tennessee | Poor |
| Texas | Poor |
| Vermont | Poor |
| Washington | Fair |
| West Virginia | Other ^b |
| Wisconsin | Excellent |

^aState officials in Idaho, New York, Missouri, Utah, Virginia, and Wyoming declined to participate in our telephone survey.

^b"Other" indicates that the respondent was uncertain about the state's financial capability.

Comments From the Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 2 1998

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. Peter F. Guerrero, Director
Environmental Protection Issues
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Guerrero:

Thank you for providing the opportunity to comment on the Draft Report, Hazardous Waste: Unaddressed Risks at Many Potential Superfund Sites. We appreciate the scope of this undertaking and the considerable effort to include survey results from others, e.g., States and other Federal agencies.

We agree with the basic findings and recommendations that 1) a substantial number of potential Superfund sites require attention and 2) EPA and the States should develop a joint strategy for addressing these sites. However, we also believe it would be worthwhile to include the Superfund program's accomplishments. EPA has investigated over 40,000 potential hazardous waste sites and made final decisions almost 35,000 sites. We have performed removal actions at over 5,500 sites to address the most urgent risks and stabilize conditions to prevent further releases; more than 1,400 sites have been placed on the National Priorities List (NPL). In addition, we have completed cleanup construction at 585 NPL sites. Cleanup studies and decisions have been completed at most NPL sites that are awaiting funding at this time. Moreover, the States have cleaned up thousands of sites under their own programs and authorities.

I believe this report will be useful to Congress, the Agency, States, and others interested in the future of the Superfund program.

Sincerely,

A handwritten signature in dark ink, appearing to read "Stephen D. Luftig".

Stephen D. Luftig, Director
Office of Emergency and Remedial Response

cc: Tim Fields, OSWER

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